

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF OHIO
WESTERN DIVISION

.
OHIO A. PHILIP RANDOLPH . Case No. 1:18-cv-357
INSTITUTE, et al., .
 . **Day 7 of Bench Trial**
 .
Plaintiffs, .
 .
- v - .
 .
LARRY HOUSEHOLDER, et al., . Tuesday, March 12, 2019
 . 8:59 AM
 .
Defendants. . Cincinnati, Ohio

- - -

TRANSCRIPT OF PROCEEDINGS
BEFORE THE HONORABLE TIMOTHY S. BLACK, THE HONORABLE KAREN
NELSON MOORE AND THE HONORABLE MICHAEL H. WATSON, JUDGES

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P R O C E E D I N G S

(In open court at 8:59 AM.)

(Thomas Brunell resumes the witness stand.)

JUDGE BLACK: Good morning. Please be seated. It's a minute or two before 9:00. We're back on the record in the open courtroom in *Ohio A. Philip Randolph Institute, et al. versus Larry Householder, et al.* The plaintiffs' counsel is here. Defense counsel is here. Intervenors' counsel is here.

Mr. Fram, do we have a report on time?

MR. FRAM: We do, Your Honor. However, this morning, Mr. Strach's going to give you the report.

JUDGE BLACK: Is that a bad development?

MR. FRAM: No.

MR. STRACH: We're rotating the honor of reporting the time to the Court.

JUDGE BLACK: Very well.

MR. FRAM: Thanks.

MR. STRACH: So we have the plaintiffs yesterday had 179 minutes, for a total of 1,126 minutes. Defendants and intervenors had a total of 140 minutes yesterday, for a total of 961 minutes.

JUDGE BLACK: Very well.

That's agreed; is that right?

MR. FRAM: Yes, it is, Your Honor.

JUDGE BLACK: Thank you.

1 MR. STRACH: And, Your Honor?

2 JUDGE BLACK: Yes.

3 MR. STRACH: One more minor thing.

4 JUDGE BLACK: Yes.

5 MR. STRACH: Yesterday I agreed to chase down the
6 goose and the gander about the impeachment exhibits for Dr.
7 Thornton, and we agreed they can come in as substantive
8 evidence.

9 JUDGE BLACK: Come in subject to what?

10 MR. STRACH: As substantive evidence, as we did with
11 the Cho impeachment exhibits.

12 JUDGE BLACK: Very well. They're admitted as such, to
13 confirm yesterday. Thank you for tracking that down.

14 Good morning, Ms. Levenson.

15 MS. LEVENSON: Thank you, Judge. Good morning.

16 It's become apparent to us that the defendants' case is
17 getting close to coming to a close, and so it will be time for
18 our rebuttal. We do have a couple of rebuttal witnesses, and
19 one is a congressperson who is engaged in her duties with
20 committee hearings and votes. And so we are going to have to
21 make a motion that she be permitted to testify via live video
22 conference.

23 By the same token, due to her really complicated schedule,
24 we want to make sure that we have an idea of the timing so that
25 we can make arrangements for her to go to the federal

1 courthouse and get all hooked up and be available for when it's
2 needed to happen within her schedule.

3 So we've requested a meet-and-confer with the other side
4 during lunch today. We've asked that they disclose their
5 witnesses to us, the timing of their witnesses to us earlier
6 than our agreement would call for. We've been operating with a
7 7:00 PM the night before disclosure. And so we're going to try
8 to, hopefully, work out with the other side a time to make this
9 happen, if Your Honor grants the motion for live video
10 testimony.

11 JUDGE BLACK: And who is the congressperson?

12 MS. LEVENSON: Congresswoman Marcy Kaptur.

13 JUDGE BLACK: Does the defense or the intervenors wish
14 to be heard orally on the motion to permit the congresswoman to
15 testify by video conference pursuant to the similar ruling by
16 the Court as to Congresswoman Fudge?

17 MR. STRACH: My understanding is that the motion is a
18 to-be-made motion. It hasn't been made yet. So we just found
19 out about this. We were hoping to have the opportunity to
20 think on this before -- before arguing the motion.

21 MS. LEVENSON: Your Honor, if I didn't make it clear,
22 I am making the motion now orally.

23 JUDGE BLACK: It's an oral motion. Do you wish to be
24 heard in opposition?

25 MR. STRACH: Well, in that case, Your Honor, yes.

1 Just for the record, this is a witness whose name has been
2 disclosed during discovery, throughout discovery. It's a
3 witness that could have been put on the witness list. This is
4 a witness that the plaintiffs could have brought to trial or
5 done a video conference as a witness in their case-in-chief.
6 So we don't believe it's a proper rebuttal witness to begin
7 with.

8 And we also believe that video conferencing is not
9 appropriate for many of the same reasons that, number one, she
10 could have been disclosed, she could have been deposed. A lot
11 of this could have been handled before trial, and so we want to
12 note for the record that we oppose the motion.

13 JUDGE BLACK: Do the intervenors wish to be heard
14 further? Good morning, Mr. Lewis.

15 MR. LEWIS: Good morning, Your Honors.

16 JUDGE BLACK: You appear to be vertical.

17 MR. LEWIS: I am.

18 JUDGE BLACK: Very well.

19 MR. LEWIS: Thank you. You know, we join the
20 defendants in opposing the request for the video link on this
21 particular witness. We are actually checking the trial
22 transcripts now, but we're not -- we may want to be heard
23 further after lunch, once we've had a chance to review
24 everything. Again, this just got dropped on us about ten
25 minutes ago. We are also not confident at all that

1 Representative Kaptur would be a suitable rebuttal witness.

2 JUDGE BLACK: Very well. Last word on the oral
3 motion?

4 MS. LEVENSON: Yes, Your Honor. We had no intention
5 of calling Congresswoman Kaptur when we began our case, at that
6 point in time, but it became apparent yesterday during
7 testimony that there was evidence placed into the record that
8 she needs to rebut.

9 JUDGE BLACK: Very well. The Court takes the matter
10 under consideration. We'll act expeditiously. We're not going
11 to whisper at the bench. Thank you.

12 I do have a question. Have the twins been named?

13 MS. LEVENSON: Oh, yes. Thank you, Judge. Ellery and
14 Jenna. The big one is Ellery and the little one's Jenna. No,
15 vice versa. The big one's Jenna.

16 JUDGE BLACK: That's a wonderful thing.

17 MS. LEVENSON: Thank you. Thank you, Judge.

18 JUDGE BLACK: I was going to suggest Timothea, but,
19 the decision's been made.

20 Have we cleared the decks such that we can proceed to
21 continued direct examination? Are we ready to go from the
22 plaintiffs' perspective?

23 MS. LEVENSON: Yes, Your Honor.

24 JUDGE BLACK: And the defense as well?

25 MR. STRACH: Yes, Your Honor.

1 JUDGE BLACK: Good morning.

2 MS. McKNIGHT: Good morning, Your Honors.

3 JUDGE BLACK: The witness remains on the stand. He's
4 under oath. He understands; correct?

5 THE WITNESS: I do, Your Honor.

6 JUDGE BLACK: You may commence when you're ready.

7 MS. McKNIGHT: Thank you, Your Honor.

8 And before I do, one more point of administration. There
9 are two issues that are going to come up during my examination
10 today that I want you to be prepared for. The first is that I
11 will likely ask that you take judicial notice of several facts,
12 namely, census data and maps and a map showing from the Board
13 of Elections.

14 I will be introducing that evidence or asking for you to
15 take judicial notice under Rule 201. I just want you to be
16 prepared for that.

17 JUDGE BLACK: It's good to have the heads-up.

18 MS. McKNIGHT: The second issue is that, related to
19 new information we learned last week during trial, we have
20 prepared a demonstrative exhibit. The parties were in an
21 agreement before trial about the exchange of demonstrative
22 exhibits. That agreement was silent as to any new information
23 or so-called rebuttal demonstratives. We understand that
24 plaintiffs would like to object, and we want to make sure you
25 note that for the record. And we believe that the Court can

1 resolve this objection better in the context of Dr. Brunell's
2 testimony. So I will alert you when we're getting to that
3 demonstrative.

4 JUDGE BLACK: Very well.

5 Before you commence, and while we're talking about
6 administration, the Court is very interested in the progression
7 of the trial and would like an estimate after you've conferred
8 at lunch as to how much more time the defense intends to
9 utilize so that we can plan our calendars.

10 As to rebuttal witnesses, they need to be rebuttal
11 witnesses, and it is the Court's fond hope that we conclude
12 this matter this week.

13 I'm sorry. Yes, ma'am.

14 MS. THOMAS-LUNDBORG: Your Honor, I just want to make
15 clear that we do object to the new demonstrative, and I would
16 like time to be heard when counsel is intending to enter it
17 into the record.

18 JUDGE BLACK: Very well.

19 MS. McKNIGHT: And one final note on that. There's
20 always one final note. We did provide advance notice of not
21 only the demonstrative itself, but the underlying data, the
22 substance of it, to plaintiffs' counsel last evening about
23 8:24, so --

24 JUDGE BLACK: Very well.

25 MS. McKNIGHT: Your Honors, I would like to, candidly,

1 bring that issue to a head earlier rather than later, because
2 it is important. So I'll start with some questions for
3 foundation with Dr. Brunell.

4 JUDGE BLACK: Very well.

5 THOMAS BRUNELL

6 a witness herein, having been previously duly sworn, testified
7 further as follows:

8 DIRECT EXAMINATION (Continued)

9 BY MS. McKNIGHT:

10 Q. Good morning, Dr. Brunell.

11 A. Good morning.

12 Q. For your work in this case did you review Dr. Handley's
13 report?

14 A. I did.

15 MS. McKNIGHT: Let's bring up PX 254.

16 Q. This is Dr. Handley's report. And I'd like to turn to page
17 38 in her list of academic articles. So page 38, please.

18 Now, the very first article listed by Dr. Handley, do you
19 recognize it?

20 A. Yes, I do.

21 Q. And you were a co-author on that, weren't you?

22 A. I was.

23 MS. McKNIGHT: Let's bring up that article, I31. And
24 I'll pass a copy to the Court for their reference.

25 Permission to approach, Your Honors?

JUDGE BLACK: Yes. Thank you.

Q. Now, understanding that you were a co-author of this particular article, could you tell the Court what the article was about, in general.

A. Sure. We were interested in looking at the effects of the Voting Rights Act in race-conscious redistricting, you know, that started primarily in the -- in the 1980s, to see the impact that it has had over time -- right? -- and we did this just prior to the last round of redistricting. So we gathered all the census data, the racial and ethnic data for both state legislative districts and congressional districts across the country. And then we matched that up with the race or ethnicity of who was elected to the offices so we could sort of empirically look at, you know, where are African-Americans, what do districts look like that elect African-Americans, what do districts look like that elect Latinos. And we found that the overwhelming majority of minority-elected representatives come from districts that are majority minority.

MS. THOMAS-LUNDBORG: Your Honor --

JUDGE BLACK: Plaintiffs' counsel is standing.

MS. THOMAS-LUNDBORG: Yes. I object to this testimony as undisclosed. Lisa Handley has been a noticed witness since October in this case. Dr. Brunell did not cite this article as work cited in his report. He has a one-paragraph analysis of the VRA on page 18 of his report, and he does not discuss any

1 of the things that he is currently testifying before the Court.

2 JUDGE BLACK: And the quick response?

3 MS. McKNIGHT: Of course, Your Honor. You will recall
4 that this article was brought up by plaintiffs' counsel in the
5 direct examination of Dr. Handley, in the redirect examination
6 of Dr. Handley. And at that point plaintiffs lodged a
7 relevancy objection to the admission of this exhibit, which is
8 surprising considering their use of it. But we believe it's
9 fair to examine a co-author of this article about the meaning
10 of it.

11 MS. THOMAS-LUNDBORG: I'm clarifying the record. This
12 first article was first brought up on cross by intervenors'
13 counsel and then by plaintiffs' counsel on redirect after the
14 cross-examination.

15 MS. McKNIGHT: Your Honor, the record will be clear on
16 that.

17 JUDGE BLACK: All right. We're all going to take a
18 deep breath.

19 MS. McKNIGHT: Yeah.

20 JUDGE BLACK: All of us. And the objection is noted
21 and you may proceed.

22 MS. McKNIGHT: Thank you very much, Your Honor.

23 Q. Dr. Brunell, if we were trying to get a sense of political
24 science thinking at the time of map drawing in 2011, is this
25 article a fair representation of that thinking?

1 A. I think it is, yes.

2 Q. Let's focus on Dr. Handley's own words in describing this
3 article during direct examination in this trial.

4 MS. McKNIGHT: Could we put up trial Day Two
5 transcript at page 155.

6 Now, Dr. Brunell, this testimony is already in the record.
7 I don't expect you to read it aloud. I just ask you to focus
8 on lines nine through 19, and then I'll have some questions for
9 you after you read it.

10 A. Okay.

11 Q. Do you understand from this testimony from Dr. Handley that
12 she thinks it is necessary to do a jurisdiction-specific
13 functional analysis where VRA maps are drawn?

14 A. Yes.

15 Q. Now, understanding that you've co-authored this article
16 with her, and you've been admitted as an expert in Voting
17 Rights Act, what do you understand her to mean when she says
18 "jurisdiction-specific functional analysis"?

19 A. This is the idea that not all neighborhoods, not all
20 counties, not all states are the same. So when you are looking
21 to draw a majority-minority district in a certain area, you
22 want to -- you want to take an intensely local appraisal, I
23 guess the Court said in one of the cases, and examine actual
24 data to see what the appropriate percentage of minority voting
25 age population would be in that district. Because it does

1 differ. It depends on the differential rates of turnout
2 between whites and African-Americans or Latinos, and it also
3 relies on the percent of support that both the minority
4 candidates give to each candidate -- right? -- the minority
5 candidate, the minority-preferred candidate and the other
6 preferred candidate and also the percent of white voters who
7 are willing to cross over and vote for the candidate that the
8 minorities prefer.

9 So those variables all differ across the country. And so
10 like Professor Handley says, you know, in some jurisdictions,
11 in order to draw a district that would give the -- that would
12 give the minority voters an equal opportunity to elect a
13 candidate of their choice, you might need 55-, 56-, 57 percent
14 voting age population in that jurisdiction. And, in other
15 areas, other -- maybe in other areas in the state or maybe in
16 other areas of the country you might need significantly less
17 than that.

18 Q. And I heard you say that those variables could differ
19 across the country. Could those variables also differ across a
20 state?

21 A. Absolutely.

22 Q. And could those variables differ between counties within a
23 state?

24 A. Sure.

25 Q. All right. Let's focus on Dr. Handley's report.

1 MS. McKNIGHT: Could we pull up PX 254, please.

2 Q. I'm going to identify for you two lines in Dr. Handley's
3 report, and then I'll ask you a question.

4 The first line I'd like to ask you about is the very first
5 line in her report, when it reads, "My analysis of
6 participation rates and voting patterns in the 11th
7 Congressional District of Ohio." Do you see that?

8 A. Yes.

9 Q. Okay. And now turning to page four, and the very first
10 line, "When the results of statewide elections within the
11 boundaries of the 11th Congressional District are examined."
12 Do you see that?

13 A. I do.

14 Q. Dr. Brunell, what did you understand these statements to
15 mean about where Dr. Handley's jurisdiction-specific functional
16 analysis was conducted?

17 A. She looked at the 11th Congressional District,
18 specifically.

19 Q. Okay. Did you understand from these statements in Dr.
20 Handley's reports that she conducted a jurisdiction-specific
21 functional analysis outside of the 11th Congressional District?

22 A. That -- I don't believe she did that, no.

23 Q. Now piecing this together, let's turn to Plaintiffs'
24 Demonstrative 20.

25 MS. McKNIGHT: And, Your Honors, I have a paper copy.

1 May I approach?

2 JUDGE BLACK: Yes.

3 Q. Dr. Brunell, do you have Plaintiffs' Demonstrative 20 in
4 front of you?

5 A. I do.

6 Q. Now, I'd like to focus you on the light blue portion of
7 this map. Is it your understanding that that light blue
8 portion illustrates Congressional District 11?

9 A. Yes.

10 Q. And is it your understanding that it is that geography on
11 which Dr. Handley conducted her jurisdiction-specific
12 functional analysis?

13 A. Yes.

14 MS. THOMAS-LUNDBORG: Objection, Your Honor.

15 JUDGE BLACK: Noted.

16 Q. Okay. Now, let's get to an understanding of where Dr. Cho
17 drew her Voting Rights Act maps. Let's start with her own
18 words.

19 MS. McKNIGHT: Could we turn to Plaintiffs' Exhibit
20 87, at page eight.

21 Q. Dr. Brunell, I'd like to draw your attention to the section
22 "Minority Districts," and I'd like to focus your attention on
23 the second sentence where it reads, "Consistent with the
24 recommendation from Dr. Lisa Handley that a 45% BVAP is
25 sufficient to satisfy the Voting Rights Act in the vicinity of

1 District 11 in the challenged plan." Do you see that?

2 A. I do.

3 Q. So going back in time, if we can, Dr. Brunell, to the first
4 time you read Dr. Cho's report, without knowing what her maps
5 looked like; is that right?

6 A. Yes.

7 Q. Did you have to rely on her words that her maps were drawn
8 in the vicinity of District 11?

9 A. Yes. Of course.

10 Q. Now, Dr. Cho testified about how she defined "vicinity of
11 District 11." Let's bring up the trial transcript from last
12 Friday. This is trial transcript Day Five at page 72.

13 I'd ask you to read these lines to yourself, Dr. Brunell.

14 A. Okay.

15 Q. Testimony's already in the record. I'd ask you to read
16 lines nine through 25, please.

17 A. Okay. I've finished.

18 Q. Now, do you understand this testimony to mean that Dr. Cho
19 actually defined "vicinity of District 11" to mean Cuyahoga
20 County?

21 A. That's what it sounds like. She says that, "all you have
22 to do is check to see what county it is in."

23 Q. And do you read this to mean that all 3 million of Dr.
24 Cho's simulated maps are drawn within the confines of Cuyahoga
25 County?

1 A. That -- that would be the conclusion that I would draw,
2 yes.

3 Q. And was this information from Dr. Cho, provided last
4 Friday, this definition, was that included in her report or was
5 it new, based on her trial testimony?

6 A. I think it was new information.

7 Q. Now, one more point from Dr. Cho's testimony on Friday.

8 MS. McKNIGHT: Let's put up page 82. And we'll look
9 at lines three through ten.

10 Q. Dr. Brunell, would you let me know when you're done reading
11 that testimony.

12 A. I'm done.

13 Q. Okay. Did you know, before Dr. Cho testified at trial,
14 that no district-specific functional analysis had been
15 conducted where Dr. Cho's maps had been drawn?

16 A. No, I did not.

17 Q. And did you know, before Dr. Cho testified on Friday, that
18 the location of her maps was not known to Dr. Handley when Dr.
19 Handley conducted her analysis for this case?

20 A. No.

21 MS. McKNIGHT: Let's put up Plaintiffs' Demonstrative
22 20 again.

23 Q. I understood from your earlier testimony that Dr. Handley
24 conducted her jurisdiction-specific functional analysis on the
25 blue shaded area on this map.

1 A. That's my understanding.

2 Q. Now, can you describe where Cuyahoga County is in relation
3 to CD11 in this map?

4 A. Yeah. It's the -- the northern part of the district is in
5 Cuyahoga County, and then there's parts of the county around
6 the northern part of the district that are in Cuyahoga County,
7 but not in the district.

8 Q. Now, we've had testimony in this case about the border of
9 Cuyahoga County. For reference, I will ask my colleague to
10 draw a line around Cuyahoga County, and ask you if that -- if
11 that squares with your understanding of the lines.

12 A. Yeah, that -- that looks right.

13 Q. Now, understanding Dr. Handley's admonishment to conduct a
14 jurisdiction-specific functional analysis, and your testimony
15 that she conducted her jurisdiction-specific functional
16 analysis on CD11, the blue portion of the map, what is the
17 problem with Dr. Cho drawing all of her districts within the
18 confines of Cuyahoga County, using Dr. Handley's figures from
19 Congressional District 11?

20 JUDGE BLACK: Excuse me. Plaintiffs' counsel?

21 MS. THOMAS-LUNDBORG: Yes, Your Honor. Objection to
22 misstating the testimony of Dr. Handley. We've been checking
23 it in real time. I can do it on cross-examination to clarify
24 the point. And also objection to the notion that any of this
25 evidence was unknown. The tests that Dr. Handley ran would

1 include the surrounding areas, as Dr. Brunell is well aware.

2 THE COURT: Objection's noted. The witness can answer
3 the question, if you remember it.

4 A. Yeah, I think my memory needs to be refreshed.

5 Q. I'm happy to ask it again.

6 Now, understanding Dr. Handley's admonishment to conduct a
7 jurisdiction-specific functional analysis and your testimony
8 that she conducted her jurisdiction-specific functional
9 analysis on CD11, what is the problem with Dr. Cho drawing all
10 of her districts within the confines of Cuyahoga County, using
11 Dr. Handley's figure from CD11?

12 A. Well, the -- the recommendation that Dr. Handley's able to
13 make with her report is district specific. And so, therefore,
14 the -- if, then, Dr. Cho is going to use those numbers --
15 right? -- then she has to use the same district, because if the
16 district changes, then we have to do a different functional
17 analysis for the new district. And so the -- the fact that it
18 appears -- again, we don't know for sure. We haven't seen --
19 nobody's seen any of these maps. This is why it would have
20 been useful to have maps in the first place, so we could kind
21 of see what -- what did this algorithm do. So what did the VAR
22 look like in Dr. Cho's 3 million iterations? We don't know.

23 It sounds like they were confined to Cuyahoga County, which
24 means parts of the district would be part of what Lisa Handley
25 looked at, but we would need a new functional analysis for the

1 areas that Dr. Cho looked at -- right? -- which includes part
2 of CD11, but it specifically does not include, you know, the
3 other half of the district. Right? And I think that the
4 population outside of Cuyahoga County is actually a majority of
5 CD11, lives outside of Cuyahoga County.

6 And so it's -- it's inappropriate because, again, the
7 number, the magic number that the functional analysis provides
8 could be different from District 11. Right? It could be
9 lower. It could be higher. It might be the same -- right? --
10 but we don't know.

11 Q. Now, could Dr. Handley have conducted her
12 jurisdiction-specific functional analysis on Cuyahoga County?

13 A. You can do it anywhere, sure.

14 Q. Well, but she didn't in this case; is that right?

15 A. That's correct.

16 MS. THOMAS-LUNDBORG: Objection. Misstates Dr.
17 Handley's analysis.

18 JUDGE BLACK: Very well.

19 MS. McKNIGHT: Your Honor, I'd be happy to have a
20 standing objection that eliciting his opinion about matters
21 somehow misstates testimony or analyses.

22 JUDGE BLACK: Are you comfortable with that
23 stipulation and standing order objection?

24 MS. THOMAS-LUNDBORG: Yes, Your Honor.

25 JUDGE BLACK: Very well. Thank you.

1 Q. Now, in a minute I would like to zoom in on Cuyahoga County
2 and ask you some questions about that. But could we take a
3 step back for a moment and discuss why this matters for
4 minority representation. What is the risk of drawing a
5 formerly majority-minority district at a minority level of
6 BVAP?

7 A. You're not talking about this district specifically? Just
8 sort of generally?

9 Q. In general.

10 A. Right. The risk is that it -- it's possible that -- and,
11 again, it all depends on -- on the -- the behavior of voters in
12 that area, but it's possible, as you reduce the percent of
13 minority voters in a district -- right? -- the odds of the
14 minority-preferred candidate losing, particularly at the
15 primary election, starts to increase. Right? So at some point
16 you're going to have more white Democrats in the district than
17 African-American Democrats. And it could be the case then at
18 some point -- right? -- the white Democrats are going to carry
19 the election. And so then that would mean, you know, even in
20 the general, you still might elect a Democrat -- right? -- but
21 that's not the preferred candidate of the minority voters.

22 MS. THOMAS-LUNDBORG: Objection, Your Honor.

23 Plaintiffs disclosed in October that they were using a 45
24 percent BVAP, and this particular opinion was not disclosed as
25 part of Dr. Brunell's report.

1 JUDGE BLACK: Very well. The objection is noted.

2 Q. And based on your experience and your expertise, as between
3 a white Democrat and a black Democrat, does the political
4 science community have a conclusion about which one of those
5 candidates are preferred by African-American communities?

6 MS. THOMAS-LUNDBORG: The same objection. And I'm
7 willing to have a standing objection for the evidence that it
8 seems counsel wants to disclose was not disclosed in his expert
9 report.

10 JUDGE BLACK: Very well. The Court notes the standing
11 objection.

12 A. I -- can you repeat the question. I'm sorry.

13 Q. Absolutely.

14 Based on your experience and expertise, does the political
15 science community have a conclusion about which candidate,
16 between a white Democrat and a black Democrat, would be
17 preferred by an African-American community?

18 A. Well, there's -- we can look at it empirically. Right? We
19 have ways to estimate these things. And so it's not an opinion
20 -- right? -- but we can look at the data to see which candidate
21 is preferred and in a general. Right?

22 When you have an African-American running against a
23 white -- well, there tends to be polarized voting, and so
24 typically the minority candidates prefer the minority
25 candidate -- I mean, the minority voters.

1 But, again, that differs from place to place and we have
2 data. Right? So we can look. Right? We can see what the
3 minority-preferred candidate is.

4 Q. And based on Dr. Handley's analysis in this case, and
5 understanding this new information we had on Friday that all
6 Dr. Cho's maps were drawn within Cuyahoga County, can we be
7 sure that the African-American community in Cuyahoga County
8 will have an opportunity to elect its candidate of choice in a
9 district drawn at 45 percent BVAP?

10 A. We don't.

11 MS. McKNIGHT: Let's zoom in on Cuyahoga County.

12 Your Honors, I've reached my first point of judicial
13 notice. I'd ask that the Court take judicial notice under Rule
14 201 of a map of Cuyahoga County's municipalities and wards. I
15 can share that map with you now so you can see it.

16 JUDGE BLACK: Very well.

17 MS. McKNIGHT: And could we put it up on the screen,
18 please.

19 And this is the Cuyahoga County map of municipalities and
20 Cleveland wards published by the Board of Elections.

21 May I approach, Your Honor?

22 JUDGE BLACK: Yes. Thank you.

23 JUDGE WATSON: Ms. McKnight, what are we calling this?

24 MS. McKNIGHT: We call -- well, let me ask Your
25 Honors. I would like to submit this as an exhibit, so could I

1 identify it by the next exhibit number? And we'll allow
2 plaintiffs an opportunity to object, if they deem it necessary.

3 JUDGE BLACK: Yes. What exhibit number do you
4 propose?

5 MS. McKNIGHT: I would propose I132.

6 JUDGE BLACK: Very well. Is there an objection from
7 the plaintiffs as to the Court taking judicial notice of the
8 lines of Cuyahoga County?

9 MS. THOMAS-LUNDBORG: No objection to taking judicial
10 notice. There is an objection to what I think they are laying
11 the foundation for the demonstrative that I was shown last
12 night.

13 JUDGE BLACK: Very well. The Court exercises its
14 power of judicial notice and applies it to this map.

15 MS. McKNIGHT: Thank you, Your Honor.

16 Q. Now, Dr. Brunell, when you learned from Dr. Cho's trial
17 testimony that she represents that all of her districts were
18 drawn within Cuyahoga County, did you have any concerns about
19 drawing a 45 percent BVAP district or 3 million variations of
20 one within this county?

21 A. Yes.

22 Q. What were those concerns?

23 A. Again, we don't know -- right? -- the whole point of the
24 Handley functional analysis is, then, to feed that in to what
25 Dr. Cho did. And so since those things are mismatched --

1 right? -- we don't have the number -- right? Like I said, the
2 number in Cuyahoga County could coincidentally be 45 percent.
3 It might -- we might need a higher black voting age percentage.
4 We might need a lower one. We don't know. Right? That's the
5 problem is that we don't know.

6 Q. And understanding your testimony earlier, could the BVAP
7 necessary for a VRA district drawn in the western half of
8 Cleveland be different than the BVAP necessary for a district
9 to be drawn in the eastern half of Cleveland?

10 A. It could.

11 Q. Now, between the time of Dr. Cho's testimony last Friday
12 and today, have you had time to conduct a complete analysis
13 under the Voting Rights Act to determine whether the
14 African-American community in Cuyahoga County would have an
15 opportunity to elect its candidate of choice?

16 A. No.

17 Q. Okay. So we are clear that that is not what you have done,
18 what have you looked at since Friday?

19 A. I looked at some election results from the -- from the 2016
20 presidential election for this, for Cuyahoga County.

21 MS. McKNIGHT: Your Honors, for the record, political
22 data related to the 2016 presidential election is included in
23 Joint Exhibit J19.

24 Q. Dr. Brunell, what did you find upon your review of
25 political data in Cuyahoga County?

1 A. The -- obviously, the support for the two candidates for --
2 President Trump and Hillary Clinton differ widely across the
3 county.

4 Q. Were there any municipalities or wards that voted for
5 Candidate Trump by 40 percent or more?

6 A. Yes, there was quite a few.

7 Q. And were some of those municipalities or wards showing
8 voting strength for Trump by 50 percent or more?

9 A. Yes.

10 Q. And were some of those municipalities and wards in Cuyahoga
11 County voting for Candidate Trump by 60 percent or more?

12 A. There were.

13 Q. Now, Dr. Brunell, is it safe to say that Candidate Trump
14 was not considered to be the preferred candidate of choice for
15 the African-American community?

16 JUDGE BLACK: I'm sorry. Objection?

17 MS. THOMAS-LUNDBORG: Objection to the foundation of
18 whether President Trump was the preferred candidate of the
19 African-American community.

20 JUDGE BLACK: Very well. Noted.

21 A. I haven't looked at the data. Like I said, we could look
22 at the data, but, you know, from the polling numbers and from
23 the postmortems on the elections, I don't -- President Trump
24 didn't do particularly well with African-American voters.

25 Q. Dr. Brunell, why does it matter that there was notable

1 Trump support in Cuyahoga County?

2 A. Well, if you -- you know, some of those areas which were
3 not in CD11 then might be included in the VRA districts drawn
4 by Professor Cho's algorithm, and, therefore, that would lead
5 us to believe that the 45 number might very well be wrong.

6 Q. As in too low?

7 A. It could -- yes. It could be too low, absolutely. If the
8 white vote -- if there's more white voters in the areas in
9 Cuyahoga County that were not in Congressional District 11,
10 relative to the areas that were in Congressional District 11
11 that were not in Cuyahoga County -- right? -- that's the
12 difference -- the two different parts of what Handley did and
13 what Cho did -- right? -- then, the 45 -- if the -- if there is
14 less white crossover voting in Cuyahoga County -- right? --
15 that was not in CD11, then the 45 percent number is going to be
16 too low.

17 MS. McKNIGHT: Your Honors, we are at a point where we
18 need to address the demonstrative issue I identified earlier.
19 I'll tell you what we plan to do with the demonstrative, and
20 then I would like to allow plaintiffs' counsel a chance to be
21 heard.

22 As you heard Dr. Brunell testify, we learned on Friday that
23 when Dr. Cho said "I drew maps in the vicinity of Congressional
24 District 11," what she, in fact, meant was that she drew
25 districts within the confines of Cuyahoga County. Based on

1 that new information, Dr. Brunell had concerns, as he's just
2 described them. He reviewed political data in Cuyahoga County
3 to better understand whether those concerns were sound.

4 He has just testified about the results of that review. I
5 would like to put a map on the screen --

6 I can prepare you paper copies. It is identical to what we
7 gave plaintiffs last night.

8 -- that shows the results of Dr. Brunell's review of
9 political data.

10 JUDGE BLACK: And this is a demonstrative exhibit?

11 MS. McKNIGHT: That's right, Your Honor. We do not
12 intend to submit this as an exhibit in this case.

13 JUDGE BLACK: Very well.

14 Plaintiff wish to be heard on its objections?

15 MS. THOMAS-LUNDBORG: Yes, Your Honor.

16 We continue our objection that this is new information and
17 it is, in fact, rebuttal. I think I've stated that several
18 times, related to the testimony that underlies one of our
19 objections to the demonstrative exhibit.

20 The second objection is that it's untimely. Dr. Brunell
21 was set to testify yesterday. Between today and yesterday,
22 counsel was not to talk to Dr. Brunell about his testimony so
23 this was, at a minimum, information that they knew on Sunday
24 night and did not disclose the demonstrative exhibit then.

25 JUDGE BLACK: Very well. The objection's of record.

1 You may proceed.

2 MS. McKNIGHT: Thank you, Your Honor. May I approach?

3 JUDGE BLACK: Yes.

4 Is there some reason you won't hand it directly to me?

5 MS. McKNIGHT: No comment, Your Honor.

6 JUDGE BLACK: Very well. Privileged.

7 Q. Dr. Brunell, have you had an opportunity to review this
8 demonstrative exhibit?

9 A. Yes.

10 Q. Does it accurately reflect your review of the political
11 data in Cuyahoga County?

12 A. I believe it does.

13 Q. And could you explain to the Court the color coding --

14 A. Sure.

15 Q. -- in the map?

16 A. Sure. So there's three different colors. Well, the white
17 area are areas that we're not looking at, but the three colors
18 indicate an increasing support for President Trump in the 2016
19 election. So the pink areas, like Fairview Park and Rocky
20 River, Trump won about between 40 and 50 percent of the vote in
21 those jurisdictions.

22 And then in the redder areas it was between, like, Parma
23 and Brook -- Brecksville and Broadview Heights, the support for
24 President Trump in those jurisdictions was between 50 and 60.
25 And then the darkest red areas, like Valley View, Cuyahoga

1 Heights and Independence, in particular, support there was more
2 than 60 percent for President Trump against Hillary Clinton.

3 Q. Well, and I notice that some of the ward numbers are
4 partially colored with 40 percent. Can you explain why that
5 is?

6 A. I think those -- those wards were -- also were over 40
7 percent.

8 Q. So there were parts of those wards that were over 40
9 percent?

10 A. Right.

11 Q. So considering what we've discussed this morning, what
12 conclusions did you draw based on this review of political data
13 in Cuyahoga County?

14 A. Well, again, you know, when you kind of compare what CD11
15 looks like compared to this map, the most recent map that we're
16 looking at, you know, the -- you know, the darkest red areas
17 are left out of that particular district -- right? -- and they
18 might be included in Dr. Cho's districts. So those -- these
19 were -- you know, we could maybe call these parts of the county
20 the Trump country -- right? -- for lack of a better term. He
21 enjoys very high support in these areas. And so if those
22 districts -- if those -- if that -- those parts of the county
23 are then included in the algorithmic maps made by Dr. Cho,
24 then, you know, this really calls into question whether 45
25 percent black voting age percentage may be enough.

1 Q. Now, looking at the demonstrative -- and I have kept
2 intervenors' I132 on the screen in case there are legibility
3 issues with the demonstrative.

4 Looking at the demonstrative, can you know whether Dr.
5 Cho's maps included Parma but excluded Shaker Heights?

6 A. No, I have no idea.

7 Q. Can you know whether Dr. Cho's maps included so-called
8 Trump country but excluded Cleveland Heights or University
9 Heights?

10 A. I have no idea.

11 Q. Now, one more point on this demonstrative, Dr. Brunell.
12 Could I draw your attention to the district shaded for having
13 over 60 percent support for Trump on the eastern side, namely,
14 Cuyahoga Heights, Valley View, Independence and Walton Hills.
15 Do you see those municipalities?

16 A. Where's Walton Hills?

17 Q. It looks like it's the furthest east of the dark red
18 portion in the eastern side of the district -- of the county.

19 A. I mean, I see the red areas. I don't -- I can't locate
20 Walton Hills.

21 Q. Dr. Brunell -- and, pardon me -- I've neglected to mention
22 we have I132 on the screen for you --

23 A. Right.

24 Q. -- if it's difficult to read the names of the
25 municipalities.

1 A. Okay. Now that it's circled in red, I can locate it
2 easily.

3 Q. Now, understanding that borderline of Trump support on the
4 eastern side of Cuyahoga County --

5 MS. McKNIGHT: Let's bring up Plaintiffs'
6 Demonstrative 20 again.

7 Q. That eastern border of Trump support we just described,
8 where does it lie in PD20? Is it within CD11 or outside of
9 CD11?

10 A. It's outside.

11 Q. Dr. Brunell, the fullness of the record can be considered
12 in determining whether the map drawers had an interest in
13 protecting Congresswoman Fudge. I don't expect you to know the
14 fullness of the record.

15 For now, in your expert opinion, is it possible that this
16 territory was excluded from Congresswoman Fudge's district in
17 order to protect her, as opposed to being included elsewhere
18 for improper partisan advantage?

19 A. It's possible.

20 Q. You can set this demonstrative to the side. Thank you.

21 Dr. Brunell, were you hired in this case in order to
22 determine the appropriate way to address Voting Rights Act
23 districts in simulations like Dr. Cho's?

24 A. No.

25 Q. Does Dr. Handley's analysis tell you what you need to know

1 in order to draw a VRA district below 50 percent within
2 Cuyahoga County?

3 A. No, it doesn't.

4 Q. Simply put, can we rely on Dr. Handley's 45 percent BVAP
5 figure, based on CD11, to draw districts within Cuyahoga
6 County?

7 A. I don't think so.

8 Q. Dr. Brunell, last week Dr. Handley expressed some confusion
9 when I used the term "packing" in relation to Voting Rights Act
10 districts. Do you know what "packing" means when used in the
11 context of Voting Rights Act districts?

12 A. Yes.

13 MS. McKNIGHT: Your Honors, I am at another point
14 where I would ask you to take judicial notice of census data.
15 This is census data for the 11th Congressional District at the
16 time it was drawn. This is in the form of a P10 file from the
17 census, which is titled "Race for the Population 18 Years and
18 Over," and it is available publicly through the Census Bureau's
19 Web site. I would like to submit it into evidence as I133 and
20 I can offer it to you now.

21 JUDGE BLACK: Is there any objection to the Court
22 taking judicial notice of the census data?

23 MS. THOMAS-LUNDBORG: I haven't seen the census data
24 that the Court is taking judicial notice of, but I have no
25 standing objection to census data.

1 JUDGE BLACK: Very well.

2 MS. McKNIGHT: May I approach, Your Honors?

3 JUDGE BLACK: Yes. Thank you.

4 Q. Dr. Brunell, what does this document show?

5 A. This is a printout from the American FactFinder, which is
6 kind of the easiest way for someone to access census data from
7 the bureau. And so this is the -- the breakdown of the voting
8 age population of Ohio's 11th Congressional District using data
9 from the 2010 Census.

10 Q. So can you use this data to calculate the black voting age
11 population in CD11 at the time the map was drawn?

12 A. Yes.

13 Q. And have you done that?

14 A. I did.

15 Q. And what was the black voting age population in CD11 at the
16 time the map was drawn?

17 A. If you divide 281,774, which is the black or
18 African-American population, by the total population, 549,177,
19 you get approximately 51.3 percent.

20 Q. And based on your experience and your expertise, by any
21 measure of political science, is 51.3 percent BVAP considered
22 to be packing in a traditional majority-minority district?

23 A. No. And 50's the magic number. Right? So you want to
24 have over 50 percent. So that's just slightly over 50 percent.
25 So I wouldn't consider that packed.

1 MS. McKNIGHT: Your Honors, I am about to move on to
2 another section of Dr. Brunell's report. I want to offer that
3 for you, if you are considering a break, but also I have some
4 administrative exhibit items to clean up.

5 JUDGE BLACK: Not ready for a break yet.

6 MS. McKNIGHT: Okay. So I'll keep going, but -- with
7 respect, Your Honor.

8 Right now intervenors would like to move for the admission
9 of the following exhibits, to the extent we have not already
10 done so based on Dr. Brunell's testimony yesterday and today.
11 First, we'd like to move for the admission of I60. This is his
12 report that was discussed yesterday.

13 JUDGE BLACK: Any objection?

14 MS. THOMAS-LUNDBORG: We have a standing objection to
15 the reliability of the methodology both in his report and the
16 *sua sponte* analysis we've gotten here on the stand.

17 JUDGE BLACK: Subject to those continuing objections
18 and the *Daubert* motion, the Court conditionally admits I60.

19 (Intervenors' Exhibit 60 was conditionally admitted.)

20 MS. McKNIGHT: We would like to move for the admission
21 of I31. This is his joint article published with Dr. Handley.

22 JUDGE BLACK: Any objections?

23 MS. THOMAS-LUNDBORG: No objection.

24 JUDGE BLACK: It's admitted.

25 (Intervenors' Exhibit 31 was admitted.)

1 MS. McKNIGHT: We would look to move for the admission
2 of I132. This is the map of Cuyahoga County municipalities and
3 wards you took judicial notice of this morning.

4 JUDGE BLACK: Any objection?

5 MS. THOMAS-LUNDBORG: Yes, Your Honor, as untimely and
6 undisclosed.

7 JUDGE BLACK: Conditionally admitted.

8 (Intervenors' Exhibit 132 was conditionally admitted.)

9 MS. McKNIGHT: We would like to move for the admission
10 of I136. This is the census data form P10 for CD11 as drawn
11 that you took judicial notice of this morning.

12 JUDGE BLACK: Any objection?

13 MS. THOMAS-LUNDBORG: Sorry. I don't have the
14 numbers. Are we talking about the Census Bureau exhibit or the
15 color-coded map?

16 MS. McKNIGHT: Yes, counsel, we are talking about the
17 census data.

18 MS. THOMAS-LUNDBORG: No objection.

19 JUDGE BLACK: I'm sorry?

20 MS. THOMAS-LUNDBORG: No objection to the Census
21 Bureau.

22 JUDGE BLACK: And what exhibit is that, "I" what?

23 MS. McKNIGHT: That is I133.

24 JUDGE BLACK: It's admitted. And for purposes of the
25 record, the Court takes judicial notice of it.

1 (Intervenors' Exhibit 133 was admitted.)

2 MS. McKNIGHT: Thank you, Your Honor.

3 I would like to put up Intervenors' Exhibit 60.

4 JUDGE BLACK: Very well.

5 MS. McKNIGHT: And we will go to page 12.

6 Q. Dr. Brunell, in your work in this case, did you review
7 expert reports by Dr. Christopher Warshaw?

8 A. I did.

9 Q. And did you provide an opinion about those reports in your
10 own report?

11 A. Yes.

12 Q. I'd like to walk through your opinion, starting with
13 Instability of Estimates of Efficiency Gap. Could you explain
14 to the Court, in your own words, what that is and what your
15 critique of it is.

16 A. Sure. Whenever we're doing, as political scientists, these
17 types of analyses, we're faced with all sorts of decisions, as
18 an analyst, about how to -- what kind of data we should use,
19 what's appropriate, what's -- what's more appropriate --
20 right? -- it's usually not appropriate or inappropriate.

21 So my criticism here is, I think at first blush you would
22 think it makes a lot of sense to use congressional elections
23 themselves since that's what we're talking about, but there are
24 problems when you're using data from congressional elections.
25 The most obvious one is that we have uncontested elections --

1 right? -- and so if we have need to have data broken down with
2 the vote share between the two candidates feeding into what
3 ends up being our metric, when we are faced with uncontested
4 elections, the analyst has a real problem -- right? -- and we
5 have to deal with that somehow.

6 Typically we will -- we might impute a value. Right? So
7 you just say, Well, if there were an opponent -- right? -- in
8 this case, then they wouldn't get zero percent of the vote.
9 But at the same time, the fact that there is an opponent also
10 indicates a lot of strength by the incumbent. Right? So we
11 have to kind of try to figure out what we put in there.

12 And, traditionally, we've just imputed 75 percent of the
13 vote to the winner and then 25 percent of the vote to the other
14 party that didn't have a candidate. Right?

15 There are other different ways. I know that Professor
16 Warshaw used a method, kind of a statistical regression model,
17 to predict what the vote would be, a little bit more
18 sophisticated than just sort of a direct imputation. But,
19 still, these are -- these are -- these aren't real data.
20 Right? I was trying to think of an appropriate way to say it.
21 And so I think understanding that part of the input to these
22 methods include guesses -- right? -- not actual election data.

23 The other major problem with using congressional elections
24 is that there's great variation, both between districts, but
25 also within districts over time, in terms of the quality of the

1 candidates. Right? Sometimes you -- an incumbent will attract
2 a very good candidate opponent, and then sometimes they will
3 scare everybody off, and there might be kind of a sacrificial
4 lamb candidate that runs.

5 Well, depending on the quality of that candidate, that's
6 going to affect the election outcome in that particular
7 district. Right? And so -- and those are idiosyncratic for
8 all of the individual districts, and then, again, like I said,
9 within a single district across time. Right? So things like
10 campaign finance, how much money candidates are able to raise,
11 you know, the quality of the campaign itself, how good the
12 candidates are. Right? All these factors are going to affect
13 the vote outcome. Right? And then that gets fed into -- so
14 these -- these factors all change over time and across the
15 districts, and then that affects your estimates. Right?

16 And so that's why I recommend -- you know, I said it would
17 be better to use statewide elections, because we don't have
18 these same problems. Right? If we use a presidential
19 election, broken down by congressional district, which those
20 data are easily available, readily available, we don't have any
21 uncontested elections -- right? -- because presidents run in
22 every state -- right? -- and, of course, in every congressional
23 district, so we don't have the problem in uncontested
24 elections.

25 And then we also flatten out all these variables that I

1 talked about before. Right? We have the same two candidates
2 running across all of the districts, and, so, therefore, there
3 are no -- none of this variance is worked out.

4 So in my opinion, using statewide elections is far better
5 than using congressional elections, even though, you know, kind
6 of at first blush that seems to not make sense, you'd want to
7 use the congressional elections. But there's so much
8 variability and there are uncontested elections that I think
9 statewide elections are preferred.

10 Q. Turning to page 13 of your report, I see you identified an
11 issue with the efficiency gap as a new measure for an old
12 measure. Can you explain that a little bit?

13 A. Sure. So the efficiency gap, you know, has -- was created
14 relatively recently. Right? This is in the last, you know,
15 five or six years or so by -- mainly by Eric McGhee, but he
16 also has a co-author on some of his articles. I was going to
17 try to say his name, but I can't remember. It's a long Greek
18 name. I was going to say Stephanopoulos, but I don't think
19 that's it.

20 Anyhow, it's another measure of symmetry -- right? -- which
21 that's the main analytic technique that social -- particularly
22 political scientists rely on to describe whether or not a
23 particular map is fair. And so this is just another -- another
24 sort of iteration of tapping into this notion of symmetry.
25 Right? So it's a new measure of an old concept.

1 Q. Now, turning to page 14 of your report, there's a section
2 titled "Inconsistent Definition of Wasted Votes." Could you
3 tell the Court why this matters?

4 A. Sure. So the efficiency gap measures the relative ratio.
5 Right? How many -- how many votes both parties waste. Right?
6 And so that -- that kind of taps into this notion of whether
7 the map is fair or not. Right? Because if you are trying to
8 make a map -- if you waste more votes than the other party,
9 then that party's at a disadvantage.

10 And so -- but it's kind of strange, and I know that, you
11 know, this critique was brought -- I feel like the dissenting
12 opinion in the -- in the *Whitford v. Gill* case, I think the
13 judge in that case, in particular, kind of honed in on this
14 that it doesn't even -- you know, the efficiency gap doesn't
15 really measure wasted votes. Right? It says that it purports
16 to, but, for some reason, for the winning voter -- all right.
17 So let me step back really quick.

18 So all votes for the losing candidate are, quote/unquote,
19 wasted -- right? -- because their votes didn't have any impact
20 on who won. Right?

21 But also there can be votes wasted for the winning
22 candidate as well. And in -- in reality -- right? -- the
23 numbering of winning votes are however many votes the winning
24 candidate has that exceed that of the losing candidate. Right?

25 So the way the efficiency gap works is it, instead of

1 comparing the winning vote margin to the losing vote margin, it
2 takes all of the winning votes over 50 percent plus one.

3 Right? So it actually kind of undercounts the number of wasted
4 votes in a -- in an election. Right?

5 So if somebody won an election a hundred thousand votes to
6 one vote -- right? -- the winning candidate really only needed
7 two votes to win. Right? So there would be 999,999 wasted
8 votes for the winning candidate. But the way they calculated
9 it is that there was basically 50,000 wasted votes. Right?
10 Half. Fifty percent plus one.

11 Q. So does this mean that estimates would change with a
12 different definition of wasted votes?

13 A. It would.

14 Q. Now, the next section, you address Illogical Equivalence in
15 Efficiency Gap. What do you mean by that and why does it
16 matter.

17 A. Well, the efficiency gap isn't a standard. Right? The
18 efficiency gap, like all these things, are metrics. And so the
19 problem then becomes, for the Court, is how do we translate --
20 how do we take a metric and make a standard out of it. Right?
21 And there's no -- there's no obvious way to do this. Right?
22 It's difficult to do.

23 And so that's kind of the -- you know, whatever gets picked
24 -- right? -- is going to be at least partially arbitrary.
25 Right?

1 I know that in the -- the plaintiffs in the Wisconsin case
2 tried to develop an empirical justification for their -- they
3 drew a bright line at seven -- right? -- an efficiency gap of
4 seven. Anything over that would be -- would be
5 unconstitutional.

6 I think we have an objection.

7 JUDGE BLACK: Yes. Thank you.

8 MS. THOMAS-LUNDBORG: Objection to the relevance of
9 what plaintiffs in other cases have proposed.

10 JUDGE BLACK: Very well.

11 A. So -- so that's kind of -- that's kind of part of the
12 problem. Right? And then another, you know, kind of -- when
13 you're looking at the data, the efficiency gap bounces around
14 quite a bit. Right? So it -- in Warshaw's estimates, in 2012,
15 the efficiency gap in Ohio was 22.4 percent. But then in 2014
16 and 2016, they were nine percent and negative eight percent
17 respectively -- negative nine percent, if I didn't -- if I
18 didn't say negative.

19 And the latter two estimates fall into what Warshaw calls a
20 small efficiency gap range of under ten percent. So it -- it's
21 going to bounce around a lot. And that makes it harder to --
22 you know, if you're -- if you're constantly -- you would -- one
23 would feel that --

24 I think one would feel better about a metric if you kept
25 getting the same -- roughly the same answer. Right? And this

1 kind of goes to the whole thing that elections do change from
2 election to election. And based on the quality of the
3 candidates and the state of the campaigns, you're going to have
4 different vote outcomes district to district, and that's going
5 to affect the efficiency gap. Right?

6 So if that's the case -- right? -- you might feel less
7 comfortable with it as a metric. Right? I mean, if you were
8 taking your child's temperature over and over and over again
9 and you were getting 98 and 101 and 103, you know, every couple
10 of minutes -- right? -- maybe you don't trust the -- either
11 your child's temperature is, you know, bouncing about wildly,
12 or, perhaps, there's something wrong with the thermometer.

13 Q. Thank you, Dr. Brunell.

14 Turning to page 15, at the top. I notice you address
15 Professor Warshaw's argument that the districts are unsuitable
16 because of the lack of competitive general elections.

17 Could you explain your position to the Court.

18 A. Yes. So that's one of -- one of his main criticisms is
19 that the lack of general -- competitiveness at the general
20 election level. Right? And this kind of goes back to my
21 critique of what I discussed yesterday with my book --
22 right? -- that we don't need to have a competitive general
23 election in order to keep elected officials, you know,
24 responsive to what the people want. That's the goal --
25 right? -- is we want them to be worried about their ability to

1 keep their jobs. Right? I mean, because elections are like
2 decisions: Do we -- do we hire or fire this person? Right?
3 That's kind of a good way to think about elections. And we
4 want them to be worried -- right? -- that they may lose this
5 job. Right? And they are good jobs, and they're going to do
6 what it takes -- right? -- which would be representing
7 constituents, hopefully, in order to keep this thing. Right?

8 And so we don't need -- I think we kind of jump the gun in
9 this country a lot thinking that the only way to do this --
10 right? -- and the key thing that we have to have are
11 competitive general elections. And I think that's completely
12 wrong. Right?

13 Like I mentioned yesterday, we have the primary election
14 system. Right? We have the two-step process. So nobody's
15 truly safe. Right? Even if your district's a hundred percent
16 democratic -- right? -- we still have a primary where we can
17 get rid of the incumbent. We'll replace them with another
18 Democrat, but we can get rid of them. Right?

19 And, you know, when I look at outcomes like the -- in
20 Virginia -- I don't remember if this was in 2018 or 2016 --
21 there was a -- the -- the majority status of the Virginia state
22 legislature depended on the last right of the -- it came down
23 to the last election. And it turned out that it was a tie.
24 Right? And so this is like perfect competition and --

25 MS. McKNIGHT: Your Honors, we have --

1 THE WITNESS: We have an objection.

2 JUDGE BLACK: Yes.

3 MS. THOMAS-LUNDBORG: Objection as to the relevance of
4 what happened in Virginia.

5 JUDGE BLACK: Very well.

6 A. It's relevant because it's about competition. Right? And
7 so that election was decided by pulling a name out of a hat.
8 Right? And, I mean, is that -- who is that satisfactory to?
9 Right? I mean, do we celebrate that as this great competition?
10 And we end up sort of basically flipping a coin to figure out
11 who the representative is going to be. Right?

12 And so the Republican's name happened to be selected from
13 the hat. And so I -- particularly, I think, if you're a
14 Democrat -- right? -- are you happy about that outcome? Like,
15 Oh, we were so close -- right? -- and we lost by just the flip
16 of a coin. And that determined -- that also determined the
17 majority status in the state legislature.

18 And, to me, that's no way to run a country. Right? This
19 isn't, right? -- the pinnacle -- right? -- of democracy where
20 we end up drawing names out of hats to see who is going to be
21 the elected representative.

22 So I think if we take a step back and realize that there
23 are real downside costs to having competitive elections --
24 right? -- and I'm not here to argue we should get rid of all
25 competitive elections. Right? But I think if -- if I just can

1 convince the Court that there are downsides to competition as
2 well. Right? And it isn't necessary that we have competition
3 in the general election in order to keep democracy healthy, in
4 order to keep representatives responsive to what the people
5 want.

6 Q. Thank you, Dr. Brunell.

7 I'd like to move on to your review of an expert report
8 prepared in this case by Professor David Niven. Do I
9 understand correctly that you did that work in this case?

10 A. I did.

11 Q. Okay. And let's turn to page 16 of your report.

12 A. I'm there.

13 Q. Great. I see you take issue with Professor Niven's
14 argument that his evidence shows that Ohio's congressional
15 districts needlessly divide communities.

16 A. That's correct.

17 Q. Can you explain your position.

18 A. Yes. I think in reading Professor Niven's report, it
19 seemed like there was no boundary he'd ever come across that he
20 didn't dislike. Right? That there was objection to wherever
21 boundaries are drawn -- right? -- just sort of example after
22 example after example. And the fact of the matter is that
23 these boundaries have to go somewhere. Right? And even if
24 they're straight and nice and neat and clean, they're going to
25 divide cities, they're going to divide counties, they're going

1 to divide neighborhoods. Right? It's inevitable. Right?

2 Like I said, it's a fact of the single member district system.

3 And so to sort of look at a map and criticize where all the
4 lines are -- right? -- without appreciating the -- the -- the
5 problem that mapmakers are -- are faced with when they're
6 drawing these districts -- right? -- like equalizing the
7 population down to a single person -- right? -- that's going to
8 mean split counties, split cities, jagged edges, funny shapes.
9 Right? He particularly doesn't like funny-shaped districts,
10 but funny-shaped districts happen all the time. Right? And
11 we'd prefer to have them less funny looking than more funny
12 looking, but districts do look funny. Right?

13 I mean, CD11 isn't a perfect square. It looks funny. But
14 it's solving a problem. Right? It's providing a -- the
15 minority voters in that part of Ohio an opportunity to elect
16 the candidate of their choice.

17 So that's kind of, at a broad level, what's going on. But
18 then, kind of, when you focus on a lot of his examples -- so
19 for instance -- I can't remember off the top of my head, but I
20 remember him mentioning specific houses.

21 Like I know there was one on Renner Road. I remember that
22 was one of them, because I actually lived near Renner Road,
23 too, in Texas. And I think the other one was on North Bend
24 Road, where he kind of honed in, you know, down to the
25 individual household level and he was really offended that,

1 like, one house on this street was put in one district than the
2 rest of it, and like, Oh, this is ripping neighborhoods apart.
3 Well, it certainly --

4 So why was that house taken out? Right? I think that's
5 the question. And it wasn't for political reasons. Right?
6 That's for sure, it wasn't for political reasons because we
7 don't have data at the household level. Right? The data are
8 at the voting tabulation district level. So there's
9 absolutely -- we don't know. Right? Unless the mapmaker knew,
10 Hey, my friends, you know, John and Sherry, live there, and
11 they're solid Republicans and let's put them in this district.
12 Right?

13 Absent that kind of information, this was not done for
14 political purposes. It was almost certainly done to equalize
15 the population. Right?

16 Because, again, for congressional districts, it's down to
17 the person. Right? And so that's what you have to do. You
18 end up, you know, making these small little cuts to make sure
19 that we have equal population in every district. All right?

20 And we've done that -- right? -- because the Supreme Court
21 demands it of us. Right? And that's the right -- it's good.
22 Right? Those decisions equalize political power within a --
23 within a state across districts. That was important. They
24 solved a real problem there.

25 The other reason a house might be carved out is that,

1 oftentimes, incumbents have these, you know, for lack of a
2 better word, kind of vanity requests. Right? Like you would
3 like to have your mother in your congressional district or your
4 close friends in your congressional district or your -- your
5 lake house in your congressional district.

6 And these -- that sounds weird. These sorts of requests
7 are made all the time. All the time. I know that in the last
8 round one of the local representatives in -- I saw on the
9 news -- asked for his grandkids preschool to be included in his
10 district. Right? This is just, you know -- I mean, they just
11 want to represent their family, in addition to other things.

12 And so that might have been -- that might have been the
13 request, too. Perhaps that's happening. But I suspect it's
14 probably the former, the one-person, one-vote requirement that
15 really was driving these sorts of things.

16 Q. Thank you, Dr. Brunell.

17 I'd like to bring up an example from Professor Niven's
18 report.

19 A. Okay.

20 Q. Let's turn to Plaintiffs' Exhibit 524, page 18.

21 Now, Dr. Brunell, can you conclude that the line drawn in
22 the figure on page 18 was needlessly divided?

23 A. No.

24 Q. And why not?

25 A. Well, we don't -- we can't jump into -- we don't know the

1 problems that the mapmaker is solving by putting the districts
2 here. Right? I mean, and this is not -- right? These are all
3 squarish lines. Right? This isn't a bunch of squiggly lines.

4 And this one, in particular, he made a big deal out of the
5 fact that it splits a truck assembly plant -- right? -- a Ford
6 assembly plant in half. And that was even -- splitting
7 something that doesn't have any people living in it doesn't
8 matter. Right? There's no political advantage, because
9 there's no voters there. Right?

10 So it's completely meaningless if you split, you know,
11 Cowboy Stadium, for instance, if we split that in half --
12 right? -- nobody lives there -- right? -- so it has absolutely
13 no effect politically in terms of elections. Right? So that's
14 true of a park? Right? I assume nobody lives in a Ford truck.
15 I could be wrong about that. But I'm guessing nobody lives
16 there. So it has no -- no political purpose.

17 You know, so why did they split it? I don't know for sure.
18 But the line is straight, so maybe they wanted to keep the line
19 straight for compactness purposes. Maybe both incumbents
20 wanted to have part of the plant in their district. Right?
21 Hey, this would be good for me. I have a good relationship
22 with Ford -- right? -- and I want to, you know, lay claim to
23 this relationship, and so let's split the -- the thing in half.

24 And, again, I'm just speculating. I don't know. But that
25 could be it. Or more maybe even Ford Motor Company went and

1 said, "Hey, you know, we would like you to split our plant in
2 half and be in two different districts." I don't -- I don't
3 know. But to -- you know, there has no political purpose
4 whatsoever, you know, in terms of election outcomes and
5 splitting voters.

6 Q. And why would the Ford assembly plant want to be split?
7 What could be some of the reasons why they would want to be
8 split in two districts?

9 A. Why Ford, the company, would want to split?

10 Q. Yes.

11 A. Maybe they'd like both the incumbents --

12 JUDGE BLACK: Excuse me. There's an objection?

13 THE WITNESS: There is.

14 MS. THOMAS-LUNDBORG: Objection to counsel's question.
15 The witness has already testified that he's speculating about
16 why things may or may not have happened.

17 JUDGE BLACK: It appears to be pure speculation.

18 MS. McKNIGHT: I'll note that he is responding to
19 speculation in Professor Niven's report.

20 JUDGE BLACK: It's like double hearsay. Objection's
21 noted.

22 Q. Dr. Brunell, is it your understanding that Dr. Niven used
23 census tracts to run his analysis?

24 A. Yes, that was part of what he looked at was split census
25 tracts.

1 Q. And what is your opinion about using census tracts for the
2 purpose of running that analysis?

3 A. I mean, it's a -- I don't know what -- he -- he's treating
4 the census tracts as if these -- it's important to keep them
5 whole. Right? And so I think it's important to go back and
6 understand what census tracts --

7 We have an objection.

8 JUDGE BLACK: Indeed. Thank you for pointing it out.

9 MS. THOMAS-LUNDBORG: Your Honor, I just want to be
10 clear that my standing objection to undisclosed testimony is
11 included in this part of his testimony, not just the Cho
12 testimony.

13 JUDGE BLACK: So noted. Thank you.

14 A. So census tracts, these were created by the Census Bureau.
15 Right? So this is an analytical tool that the Census Bureau
16 created. Right? They have these different levels of
17 hierarchy, blocks and block groups and census tracts, counties,
18 county areas -- right? -- and it's part of this hierarchy.

19 So there weren't intended, by the Census Bureau that, hey,
20 we're going to divide up the whole country into these -- these
21 things that we call a census tract. And this should be used by
22 mapmakers -- right? -- to keep neighborhoods whole. Right?
23 That wasn't the purpose of them. Right?

24 So to -- so to assume -- right? -- that -- that these
25 census tracts mean anything to a mapmaker I think is wrong.

1 Right? I don't -- I don't know what -- I actually looked -- I
2 had never looked at my census tract, and I did a few days ago,
3 over the weekend. And it -- you know, it didn't make any --
4 you know, it's kind of a rectangular shape around my
5 neighborhood, but I don't know -- it didn't make any sense to
6 me. Right? And whether that census tract got split or not
7 wouldn't be particularly interesting -- right? -- in part,
8 because nobody -- who knows what census tract they live in --
9 right? -- first of all. I'd fall into my chair -- right? -- if
10 I ran into somebody out on the street who could describe their
11 census tract. So then to make it, like, this sacrosanct thing
12 that, oh, this is something that we really have to keep
13 together -- right? -- that's what doesn't make sense to me.

14 What's the utility of this? Right? I mean, maybe the FBI
15 has divided or has a secret map of all of the neighborhoods in
16 the area. And if, then, somehow we learned about it, then do
17 we also -- and those are different from census tracts -- do we
18 also have to keep all those whole? Right?

19 So mapmaking is really, really hard. Right? And sometimes
20 census -- most of the time census tracts are kept together, but
21 sometimes they're split.

22 JUDGE BLACK: Counsel?

23 MS. THOMAS-LUNDBORG: May I have a standing objection
24 to any speculative testimony by the witness? I think he just
25 testified to the FBI maybe has census tract maps.

1 JUDGE BLACK: I wasn't aware of that, but you may have
2 a standing objection.

3 MS. McKNIGHT: That mischaracterizes that testimony,
4 but, Your Honor, I'm prepared to move on.

5 Thank you, Dr. Brunell.

6 MR. FRAM: It's a credit to you. How are you coming?

7 MS. McKNIGHT: You know what, I think I have about 15
8 to 20 minutes left.

9 JUDGE BLACK: Well, we've reached our mid-morning
10 break. Is this an adequate time to break?

11 MS. McKNIGHT: Yes, Your Honor, I'm happy to break
12 now.

13 JUDGE BLACK: All right. We'll break for 20 minutes
14 till a quarter of. We're in recess until that time. The
15 witness shall not discuss his testimony. Understood?

16 THE WITNESS: Yes, sir.

17 JUDGE BLACK: Very well. Enjoy the break.

18 COURTROOM DEPUTY: All rise. This court is in recess.
19 (Witness temporarily excused.)

20 (Recess taken: 10:27 AM - 10:48 AM.)

21 JUDGE BLACK: Please be seated. Thank you.
22 What did you do to the witness?

23 MS. McKNIGHT: You told me not to talk to him. I
24 haven't.

25 JUDGE BLACK: Indeed. We're back from our break.

1 We're gathering the witness.

2 You're not late for class, are you?

3 THE WITNESS: I feel terrible. I'm sorry. I was
4 waiting for somebody to -- I should have just come back down on
5 my own.

6 JUDGE BLACK: No. You're doing just fine.

7 THE WITNESS: All right.

8 JUDGE BLACK: We're back in the open courtroom, on the
9 record. Counsel is going to proceed with her direct.

10 JUDGE WATSON: Nice work, Erika.

11 JUDGE BLACK: You remain under oath. You understand?

12 THE WITNESS: Of course.

13 (Thomas Brunell resumes the witness stand.)

14 JUDGE BLACK: Okay.

15 MS. McKNIGHT: Your Honors, I would ask the Court to
16 take judicial notice of a 2010 Census block map for Springfield
17 Township, Ohio. I will distribute that map now. May I have
18 permission to approach?

19 JUDGE BLACK: Yes. Thank you.

20 Q. Dr. Brunell, I understood from your testimony earlier and
21 your report that you thought there could be many reasons why a
22 district could have a funny shape. Do you recall testifying to
23 that point?

24 A. I do.

25 Q. Okay. Let's turn to page ten of Dr. Niven's report. That

1 is PX 524, page ten.

2 Now, I recall you testifying about the North Bend Road
3 division.

4 A. Yes.

5 Q. Understanding that this display is in Dr. Niven's report,
6 do you remember reviewing this split identified by Dr. Niven?

7 A. Yes.

8 Q. And now turning to census block map Spring --

9 MS. McKNIGHT: Actually, pardon me, Your Honor,
10 please. Let me take a step back.

11 Q. Do you see here in this map where there is the intersection
12 between Argus Road and West North Bend Road?

13 A. I don't see Argus on my map -- on this map. I see North
14 Bend.

15 Q. Okay.

16 MS. THOMAS-LUNDBORG: Your Honors, I just wanted to
17 make sure the record is clear that we object to the use of this
18 demonstrative. It was not previously disclosed. The testimony
19 that the witness is rendering was not disclosed. The testimony
20 for which it's being elicited was disclosed in October.

21 JUDGE BLACK: Very well. Objection's noted.

22 MS. McKNIGHT: Thank you, Your Honor. And for all
23 these objections, we're happy to brief them later. We believe
24 there's support in the record for his testimony.

25 JUDGE BLACK: Very well.

1 A. I do see Argus at the -- near the bottom of the screen.

2 Q. And I'm just identifying these streets so that we can
3 identify this location in another map. So understanding that
4 this is the intersection around Argus Road and North Bend Road;
5 is that fair?

6 A. Sure.

7 Q. Now, turning to the 2010 Census block map for Springfield
8 Township, Ohio. I would ask my colleague to zoom in on a
9 portion of this map for legibility. So on your screen you will
10 see a zoomed-in version, but in your hands you have the
11 complete map version.

12 Now, reviewing the complete map version, is it your
13 understanding that the yellow shading has meaning to the map?

14 A. Yes.

15 Q. And what is that meaning?

16 A. I think that's the district lines.

17 Q. And by the key, it describes it as an incorporated place.
18 Can we agree it's an incorporated place of some sort?

19 A. Are you asking me?

20 Q. Yes.

21 A. Okay. Sure.

22 Q. Now zooming in, if you look on your screen, there's a
23 zoomed-in version of this place. Can you find the intersection
24 of Argus Road and West North Bend Road?

25 A. Yes, I believe I can.

1 Q. And at that intersection do you see a shape --

2 A. Yes.

3 Q. -- of an incorporated place that is similar to what was in
4 Dr. Niven's report?

5 A. Yes.

6 Q. Dr. Brunell, when you were talking about different reasons
7 why districts are funny, is one reason based on geography and
8 whether geography is a known place, city, county, incorporated
9 place?

10 A. Yes. Sometimes cities and municipalities take on funny
11 shapes of their own, and then if the city is kept whole, or
12 parts of the city are kept whole, then that will then translate
13 into a district that also appears funny.

14 Q. Is it your understanding from Dr. Niven's report that he
15 identified this line drawing at the intersection of Argus Road
16 and North Bend Road as being related to improper partisan
17 purpose?

18 A. I know he objected -- he was making a case -- he observed
19 to the oddly shaped -- the cutout -- right? -- in that
20 particular district.

21 Q. And is it possible that that cutout had nothing to do with
22 partisan -- improper partisan intent?

23 A. Absolutely.

24 Q. And why is that?

25 A. Because that's the -- the same cutout is part of the

1 township that is in the district itself.

2 MS. McKNIGHT: Your Honors, I would move to admit as
3 Exhibit I134 the census block map for Springfield Township,
4 Ohio.

5 JUDGE BLACK: Any objection?

6 MS. THOMAS-LUNDBORG: The same objection that was
7 stated earlier, that this is undisclosed and untimely.

8 JUDGE BLACK: Conditionally admitted. The Court takes
9 judicial notice of the census block map.

10 (Intervenors' Exhibit 134 was conditionally admitted.)

11 MS. McKNIGHT: Your Honor, I have two more maps and
12 then I'll move on to some final sets of questions.

13 I would ask the Court to take judicial notice of two census
14 maps. For the record, these are Ohio E17, Franklin County, and
15 Ohio E19, Hamilton County.

16 Do I have permission to approach?

17 JUDGE BLACK: Yes. Thank you.

18 Q. Dr. Brunell, you have before you census maps for the
19 counties, county subdivisions and places for Franklin and
20 Hamilton. Do you see that?

21 A. Yes.

22 Q. Now, you testified and you've put in your report opinions
23 about the funny shapes of districts and the reasons why
24 districts can be quote/unquote funny shaped.

25 What do the shapes of Franklin and Hamilton County tell you

1 about funny-shaped electoral districts drawn in these areas?

2 A. Like I said, for the previous map when you -- mapmakers, as
3 often as they can, try to keep municipal and county and natural
4 political boundaries whole to the extent that they possibly
5 can. And if that municipality or township or county has its
6 own funny shape, and then they follow those lines, then the
7 district itself is going to look funny. And so that -- but,
8 again, it's the funny shape -- there's a reason for the funny
9 shape. So, sometimes, funny shapes have legitimate reasons for
10 them. I think that's the key -- the key point here. That's
11 the takeaway.

12 MS. McKNIGHT: Thank you, Dr. Brunell.

13 I would like to move for the admission of the census maps
14 for Franklin County and Hamilton County. First, the census
15 map, E17 for Franklin County, at I135.

16 JUDGE BLACK: Any objection?

17 MS. THOMAS-LUNDBORG: Yes, Your Honor. This was not
18 disclosed, not last night, not any time prior to just now.

19 JUDGE BLACK: Very well. It's conditionally admitted.
20 The Court takes judicial notice of the map.

21 MS. McKNIGHT: Thank you, Your Honor.

22 (Intervenors' Exhibit 135 was conditionally admitted.)

23 MS. McKNIGHT: The second map is Ohio E19 for Hamilton
24 County for Exhibit number I136.

25 JUDGE BLACK: Any objection?

1 MS. THOMAS-LUNDBORG: Yes. The same objection.

2 JUDGE BLACK: Very well. It's noted. Conditionally
3 admitted. The Court takes judicial notice of the census map.

4 (Intervenors' Exhibit 136 was admitted.)

5 Q. Dr. Brunell, I'd like to turn to page 17 of your report,
6 I60.

7 A. Okay.

8 Q. Well, so on the bottom of page 17, you discuss the issue of
9 representation. And I'd like to ask you a few questions about
10 that.

11 A. Sure.

12 Q. Now, have you studied representation within our government?

13 A. Yes. Like I said, that's kind of the fundamental question
14 of my intellectual curiosity. That's really what I've kind of
15 done my entire career. I think it surrounds -- it's about
16 notions of representation.

17 Q. Now, do you believe that a voter goes unrepresented if the
18 candidate they vote for does not win?

19 A. No.

20 Q. And why not?

21 A. Well, I think rather than thinking about whether a voter is
22 represented or not represented -- right? -- it's not this --
23 it's not black and white. It's not a dyadic relationship like
24 that. Or there's going to be some range, some continuum of
25 representativeness. Right? And so depending on what the

1 voter -- right? And so we've split ourselves into these two
2 groups, Democrats and Republicans. And that gives us some
3 leverage about knowing what the ideological foundation and the
4 policy preferences are.

5 Of course, not all -- Democrats don't agree with each other
6 on all issues and neither do Republicans. And if we only look
7 at the elite level -- right? -- I think we would be -- we would
8 get the wrong impression. Right? Because voters do differ
9 from elected elite. So at the moment it seems like Democrats
10 and Republicans never agree on anything. But the fact of the
11 matter is, there -- at the lower levels -- right? -- there's a
12 far greater deal of overlap. And they're not -- voters aren't
13 as polarized as the elites are.

14 And so I think it's better to think about how well somebody
15 is represented, not if they are or if they're not. And so if
16 you're a Democrat and you vote for the Democratic candidate and
17 she happens to lose -- right? -- and you have a Republican in
18 office, you still have a relationship with that representative.
19 You're probably going to be less well represented by the
20 Republican, this voter is, but not unrepresented. Right?

21 And it's not just about policy issues, of course. The
22 government -- one of the many things that members, both at the
23 state legislative level and the congressional level, do is that
24 they help their constituents navigate the vast bureaucracies of
25 state and federal governments. And so people call on their

1 elected officials all the time. You know, if a social security
2 check is late or -- you know, if you have a problem with an
3 agency and you don't know who to turn to, oftentimes people
4 will call their elected official.

5 And this is what -- I think I use a quote from Bruce Cain,
6 John Ferejohn and Mo Fiorina. They define constituency service
7 as "the nonpartisan, nonprogrammatic effort to help individual
8 constituents in their dealings with the larger government."

9 And this is done on a nonpartisan basis. Right? Because you
10 don't want to -- because the members are generating goodwill.
11 This is one of the things that they can do -- right? -- to
12 help -- or they know this can't hurt me. Right?

13 When they take a position -- right? -- it's going to help
14 them with some voters and hurt them with others. But when you
15 a help a person out -- right? -- out of a bind, that can only
16 help you. Right? Even if the person -- if you don't agree
17 with them politically. Right? Doing that kind of constituency
18 service creates goodwill, and that can only help the -- which
19 is why they do it. Right? That's why they go through these
20 efforts.

21 Q. And, in your opinion, can you still be well represented as
22 a voter if you voted for a Democrat in an election but you are
23 represented by a Republican?

24 A. It's possible. Right? It all depends on what the
25 Democrat -- what the voter prefers and what the -- what the

1 member -- how the member votes.

2 Q. And is it your opinion that representation is limited to
3 how a member votes?

4 A. No.

5 Q. Now, Dr. Brunell, if you were a Court trying to decide the
6 line to be drawn between being represented and not being
7 represented, has that line been drawn in political science
8 research?

9 A. Not that I'm aware of.

10 Q. And if you were a Court trying to decide the line between
11 being represented and not represented, has that line been
12 identified in this case?

13 A. I don't think so, no.

14 Q. Dr. Brunell, understanding -- and please correct me if I'm
15 wrong. Understanding from your earlier testimony that it was
16 news to you last Friday that Dr. Cho drew all of her maps
17 within Cuyahoga County -- so your opinion filed last fall could
18 not have addressed that unknown issue. In your report, did you
19 still identify a concern about variations in BVAP needs within
20 CD11?

21 A. I assume I did.

22 Q. We can turn to page 18 of your report.

23 A. Okay.

24 I'm there.

25 Q. Okay. So in your report did you identify any concern about

1 variations in BVAP needs within CD11?

2 A. Yes. The one thing that I said in my report about
3 Handley's report was that I noted that she had previously
4 worked on a case in the area in which the magic number for
5 that -- for Euclid, Ohio was over 60 percent.

6 Q. Now, Dr. Brunell, assuming for the moment that you thought
7 Dr. Handley's analysis was perfectly executed in CD11, even if
8 you thought that, can you apply the results of her analysis in
9 CD11 to maps being drawn within Cuyahoga County?

10 A. No.

11 Q. Dr. Brunell, I just have a few more questions related to a
12 *Daubert* motion filed in this matter against your opinion.

13 A. Okay.

14 Q. Regarding your work on Dr. Cho's report, in your expert
15 opinion do you need to be able to program in C++ or have run an
16 analysis similar to Dr. Cho's analysis in order to offer this
17 Court insight about Dr. Cho's analysis?

18 A. Absolutely not.

19 Q. Regarding your report criticizing Dr. Cho -- Dr. Warshaw's
20 analysis, in your expert opinion do you need to conduct an
21 independent analysis of partisan bias in order to offer this
22 Court insight and expertise on that matter?

23 A. Absolutely not.

24 Q. Regarding your work related to Dr. Handley's report in this
25 matter, in your expert opinion and in your experience do you

1 need to conduct an independent, racially polarized voting
2 analysis in order to offer insight and expertise to this Court
3 on that matter?

4 A. Absolutely not.

5 Q. And, finally, on Dr. Niven's report and your work related
6 to that report, plaintiffs have asserted in their *Daubert*
7 motion that you did not understand Niven's data and you did not
8 analyze whether the divisions or splits in Ohio were necessary.

9 In your expert opinion, was that necessary in order for you
10 to offer this Court insight on that topic?

11 A. Oh, disagree. I disagree with what they said completely.
12 I understood what he was doing and I understood what he was
13 trying to do with the maps.

14 Q. Did you believe you misunderstood his data?

15 A. I couldn't figure out what he was doing, but that's not my
16 problem. Right? He didn't explain it well, what he was doing.
17 So that's their problem. That's not my problem.

18 So, in part, they're right: I didn't understand what he
19 was doing, but that's because he wasn't very clear. Right?
20 When he was doing his correlations and he had those really
21 long -- you know, those 400 zeros, I couldn't figure out what
22 he was doing. Honestly, I didn't know what was going on. And,
23 like I said, that's not -- that's not my problem.

24 But I understood, when he was talking about the maps and
25 the splits, I knew what he was talking about and I knew the --

1 where he was making mistakes -- right? -- where I think he was
2 making mistakes. And so I think that I'm perfectly reasonable
3 to offer my opinion, my rebuttal expert opinion to what he's
4 done here.

5 MS. McKNIGHT: Thank you, Dr. Brunell.

6 THE WITNESS: Sure.

7 MS. McKNIGHT: No further questions for now.

8 JUDGE BLACK: Plaintiffs' counsel has a chance to ask
9 questions. Cross-examination.

10 MS. THOMAS-LUNDBORG: Yes, Your Honor. May it please
11 the Court, I have a number of documents.

12 JUDGE BLACK: Very well.

13 MS. THOMAS-LUNDBORG: May it please the Court, Alora
14 Thomas representing plaintiffs. I think it's still morning.

15 CROSS-EXAMINATION

16 BY MS. THOMAS-LUNDBORG:

17 Q. Good morning, Dr. Brunell.

18 A. Good morning.

19 Q. Do you recall that we met at your deposition?

20 A. I do.

21 Q. So I'd, actually, like to turn to that deposition now.

22 MS. THOMAS-LUNDBORG: May I approach?

23 JUDGE BLACK: Yes.

24 Intervenor's counsel is standing.

25 MS. McKNIGHT: Yes, Your Honor. We would just note

1 the objection that this is an improper use of deposition
2 testimony.

3 JUDGE BLACK: Very well.

4 MS. THOMAS-LUNDBORG: I haven't used it yet.

5 JUDGE BLACK: I was going to say that, but I decided
6 not to.

7 Q. All right. Dr. Brunell --

8 A. Yes.

9 Q. -- do you recall that you were deposed on December 14th,
10 2018?

11 A. That sounds right.

12 Q. Okay. And that date postdated the October 5th, 2018
13 plaintiffs' expert date of exchange?

14 A. Yes.

15 Q. That date also postdated the rebuttal reports by
16 plaintiffs, which was November 26, 2018. Do you recall that?

17 A. I don't recall that, but if you're telling me that, I
18 believe it.

19 Q. Do you recall that in your deposition I asked you whether
20 you had either disclosed in your expert report or at deposition
21 all opinions that you intended to render in this case?

22 A. I don't recall that specific question.

23 Q. Well, let's refresh your recollection.

24 MS. THOMAS-LUNDBORG: If we could turn to page 183.
25 I'm at line 10. And I'm going down to line 18.

1 Q. I asked you, and I quote:

2 "And we discussed some of your opinions today; is that
3 right?

4 "Answer: We have.

5 "Question: Do you intend to render any other opinions
6 either not in your report or opinions that we have not
7 discussed today?

8 "Answer: I don't know. Like I said, there may be another
9 report, but there's nothing -- right now there's nothing
10 planned."

11 Do you recall that now? Does that --

12 A. Yes.

13 Q. Did you ever supplement your expert report?

14 A. I did not write another report.

15 Q. Well, you were shown by counsel a number of census data
16 that we'll get into. Is it your testimony today that that
17 census data, under -- that you relied on any of that census
18 data in writing your expert report?

19 A. I think you'll have to be very specific with me here. I'm
20 not sure exactly what you're talking about.

21 Q. Okay. You were shown, for example -- I think you still
22 have them in front of you --

23 A. I do indeed.

24 Q. -- what was marked Intervenor's Demonstrative Exhibit 135,
25 which is a picture of Franklin County.

1 A. Yes.

2 Q. Did you rely on this demonstrative in rendering your expert
3 opinion?

4 A. In the report, you mean?

5 Q. Yes.

6 A. I did not.

7 Q. You were also shown Intervenor's Demonstrative 136,
8 Hamilton County. Did you rely on this demonstrative in
9 rendering your expert opinion in your report?

10 A. I mean, in terms of the funny shapes -- not this one,
11 specifically, but in terms of funny shapes, generally, yes.

12 JUDGE BLACK: A point of clarification. Were these
13 demonstrative exhibits from the intervenors' perspective?

14 MS. McKNIGHT: They were a matter of judicial notice.

15 JUDGE BLACK: Very well.

16 MS. THOMAS-LUNDBORG: I'll stop referring to them as
17 demonstratives.

18 Q. You were also shown Intervenor's Exhibit 134, which is the
19 census block map of Springfield Township. Did you rely on this
20 data in rendering your expert report?

21 A. In a way, yes, because part of it was in Dr. Niven's
22 report.

23 Q. Did you turn over this particular document when you turned
24 over data related to your expert report?

25 A. No.

1 Q. We also saw Intervenors' 132. That is the Board of
2 Elections, municipalities and Cleveland wards of Cuyahoga
3 County of Ohio. Did you rely on this data when you rendered
4 your expert report?

5 A. No, that was in response to the -- the testimony that was
6 given last week.

7 Q. Did you turn over any data or underlying analysis with your
8 expert report?

9 A. I relied on your expert's data. So the data that I
10 analyzed, you guys gave to me. So I didn't re-turn it over.

11 Q. You didn't turn over any additional data with your expert
12 report; that's your testimony?

13 A. That's correct.

14 Q. Now, you only cited four works in your expert report; is
15 that correct?

16 A. That is correct.

17 Q. Well, and at the time of your deposition, you didn't recall
18 relying on any other works; is that correct?

19 A. I don't recall that, that question and that answer.

20 MS. THOMAS-LUNDBORG: If we could look at page 22 of
21 Brunell's deposition. I'm starting at line 8 and going to line
22 21.

23 Q. "Question: If you go to page -- if you go to what would be
24 page 20 of Exhibit 1, which is your expert report --"

25 "Yes.

1 "Are you there?

2 "Yes.

3 "Here you cited four works; is that correct?

4 "Answer: Yes.

5 "Question: Are these the only articles that you consulted
6 in preparation for your expert report?

7 "Answer: I mean, in looking at these articles, I may have
8 looked for other articles, but I don't know if I could even
9 tell you what they were."

10 Did I read that correctly?

11 A. Right. I mean, but it's -- I think the answer was correct
12 there. Those are the four articles that I cited -- right? --
13 but I've been reading about redistricting for 30 years, and I'm
14 not going to list everything in there. So my expertise comes
15 from 20 or 30 years of reading and study.

16 Q. So you couldn't recall at your deposition what else you may
17 have consulted that went into your expert report; is that
18 correct?

19 A. I didn't cite any other papers in my expert report.

20 Q. And at your deposition you couldn't name any other articles
21 that went into your expert report; is that right?

22 A. Right. Because you're sort of -- it's a bad question.

23 You're asking me -- you know, I'm not going to list everything
24 that I've ever read with respect to redistricting -- right? --
25 over the last 25 years.

1 Q. I think it's a yes-or-no question. Did you or did you not
2 recall at your deposition what else may have gone into your
3 expert report?

4 A. I said I may have looked at other articles, but I don't
5 know.

6 Q. And you didn't have a process for deciding what to cite in
7 your expert report; is that right?

8 A. I cite things when I quote them from them directly.

9 Q. And none of the articles that you cited as part of your
10 expert report discuss the efficiency gap; is that right?

11 A. That is correct.

12 Q. Okay. You reviewed Dr. Niven's initial report prior to
13 writing your report; is that correct?

14 A. Of course.

15 Q. You also reviewed the rebuttal report of Dr. Niven prior to
16 your deposition; is that correct?

17 A. I think that that's correct.

18 Q. You not only read Dr. Niven's report, but you looked at his
19 underlying data; is that correct?

20 A. Correct.

21 Q. And you also discussed Dr. Niven's data with a person named
22 Clark Bensen; is that correct?

23 A. That's right.

24 Q. And you know that Clark Bensen is a fact witness in this
25 case?

1 A. Yes.

2 Q. Now, at your deposition you testified that you looked at
3 Dr. Niven's data, but you couldn't really figure out what he
4 was doing in his report; is that right? And I think you just
5 said that also on your direct.

6 A. Correct.

7 Q. Okay. Now, I believe on direct testimony you were asked a
8 number of questions regarding Dr. Niven's report.

9 MS. THOMAS-LUNDBORG: If we could first go to page 18
10 of Plaintiffs' Exhibit 524.

11 Q. Do you recall being asked questions on direct testimony
12 about this figure and Dr. Niven's analysis?

13 A. I do.

14 Q. Did you render any opinions about this particular figure in
15 your expert report?

16 A. I didn't -- I may not have mentioned the Ford truck plant
17 specifically, but I was talking about -- I brought up some of
18 the -- the examples that he used, but I didn't go through every
19 single example that he used.

20 Q. Was this an example that you used in your expert report?

21 A. It was in my report, but not specifically. Right? There
22 was general criticisms of all of his criticisms, and this is
23 one of them. But I don't mention the Ford truck plant,
24 specifically, in my report.

25 Q. Okay. Now, you did not conduct any independent analysis on

1 communities of interest in Ohio; right?

2 A. What do you mean?

3 Q. I mean, you did not conduct -- okay. I'll ask that in a
4 different way.

5 Preservations of communities of interest is a traditional
6 redistricting criteria; correct?

7 A. It is.

8 Q. And you would agree, as a redistricting expert, that
9 maintaining counties intact protects communities of interest?

10 A. It's one of the ways that people conceive of what a
11 community of interest is, is by using county and municipal
12 lines. Because it's kind of a fuzzy concept -- right? -- what
13 constitutes a community of interest. It could cut across other
14 things, but that's kind of an easy way to do it.

15 Q. You've testified in the past that maintaining counties
16 intact protects communities of interest; correct?

17 A. That's -- like I said, that is one of the ways that we
18 conceptualize a community of interest as a county, and keeping
19 them whole is keeping a community of interest whole.

20 Q. And you've given testimony to that effect; correct?

21 A. I believe that I have, yes.

22 Q. Now, you have not done an independent analysis of splits of
23 Ohio's districts; isn't that correct?

24 A. Of all of them?

25 Q. Of any of them.

1 A. I mean, in some sense, I did. If I'm critiquing Niven --
2 right? -- he's talking about splits and then I'm talking about
3 splits.

4 Q. If we could turn to page 180 of the deposition transcript.
5 And I'm at line 3 through line 12.

6 "Question: Have you done any analysis of the splits of
7 Ohio's counties?

8 "Answer: For this case?

9 "Question: Yes.

10 "Answer: I don't recall doing that, no.

11 "Question: Have you done any analysis of the splits of
12 Ohio's municipalities?

13 "Answer: For this case?

14 "Question: For this case.

15 "Answer: I don't recall doing that."

16 Did I read that correctly?

17 A. You did. I mean, I think that the problem here is in
18 the -- you know, the -- the questions themselves, "Have you
19 done any analysis?" Right? I think at the time, you know, I'm
20 thinking -- you know, I haven't analyzed splits myself --
21 right? -- but I have criticized Niven's splits. So, in a
22 sense, you know, I have. Right? And so it's about -- you
23 know, there's a lot of uncertainty about what is meant by the
24 question, both then and now.

25 Q. In your report you didn't list a number of municipal splits

1 in Ohio; is that correct?

2 A. That's correct.

3 Q. And at your deposition you didn't know the number of
4 municipal splits in Ohio; is that correct?

5 A. I believe that that is correct.

6 Q. In your report you didn't list the number of county splits
7 in Ohio; is that correct?

8 A. Yes.

9 Q. And at your deposition you didn't know how many county
10 splits there are in Ohio; is that correct?

11 A. I assume that it's in here, so I'll say yes.

12 Q. Do you agree that it's possible to draw a map with less
13 splits for Ohio?

14 A. Theoretically? Is that what you mean?

15 Q. I'm going to stand on my question as it is. You can answer
16 as you see fit.

17 A. Could you restate it?

18 Q. Do you agree that it's possible to draw a map in Ohio with
19 less splits?

20 A. Less county --

21 Q. Less county splits.

22 A. I mean, again, the question -- are you talking about a
23 legitimate constitutional redistricting map that abides by all
24 the other things? Is that what you mean? Or are you talking
25 about any map?

1 Q. Again, I'm asking you, do you agree that it's possible to
2 draw a map in Ohio with less county splits?

3 A. I mean, you could draw a map in Ohio with one line across
4 the -- across the -- across the entire state and that would
5 have fewer splits. So if that's your question, then the answer
6 is yes.

7 Q. You don't know if it's necessary to split Cuyahoga County
8 four ways; is that right?

9 A. It's necessary to split it at least two ways.

10 Q. Do you know if it's necessary to split it four ways?

11 A. I don't.

12 Q. What about Summit County?

13 A. Is it necessary to split it four ways? Is that --

14 Q. Yes, that is the question.

15 A. Okay. I don't know if that's necessary.

16 Q. Do you know if it's necessary to split Lorain County three
17 ways?

18 A. I don't.

19 Q. Do you know if it's necessary to split Franklin County
20 three ways?

21 A. I don't.

22 Q. I think in your direct testimony you gave an example of a
23 house that may have been drawn out of a district. You don't
24 know, as you sit here today, why that house was drawn out of a
25 district?

1 A. Correct.

2 Q. Now, I think on your direct testimony you testified that
3 you hadn't seen any of Dr. Cho's maps. You did review the
4 expert report of Mr. Cooper; correct?

5 A. Yes, I did.

6 Q. And Mr. Cooper provided alternative maps as part of his
7 reports; correct?

8 A. I recall, like, at least one map that he -- I don't know if
9 he provided multiple maps. I don't recall.

10 Q. You saw, at least, a picture of one map in your review of
11 Mr. Cooper's report?

12 A. Right. Are you saying that that's one of Professor Cho's
13 maps?

14 Q. I'm asking if you've seen maps proposed by plaintiffs and
15 whether you saw Mr. Cooper's map.

16 A. I did see Mr. Cooper's map, but it's not my understanding
17 that had anything to do with what Dr. Cho did.

18 Q. In your report you make only two points about the remedial
19 map proposed by plaintiffs. The first is that it's not clear
20 whether it would meet the policy preferences of the
21 legislature; is that right?

22 A. Right. It isn't clear why the policy decisions made by Mr.
23 Cooper would be better for the citizens of Ohio than the
24 preferences of the state legislators.

25 Q. Do you know if Mr. Cooper's map -- Mr. Cooper's map had the

1 traditional redistricting criteria that you've discussed at --
2 during your direct examination?

3 A. I don't recall the specifics of the map.

4 Q. Now, your second critique was that he pairs more of the
5 2010 incumbents than the enacted map; is that right?

6 A. Yes.

7 Q. And at your deposition you testified that you had the
8 rebuttal report of Mr. Cooper; is that right?

9 A. I assume that that's correct.

10 Q. And in that report he pairs the same number of 2010
11 incumbents as the enacted map?

12 A. I don't recall.

13 Q. Now, we spent a lot of time today discussing the expert
14 report of Dr. Handley.

15 MS. THOMAS-LUNDBORG: And I, actually, would like to
16 start with P524.

17 Oh, I'm sorry. Actually, can I start with P254?

18 Q. Okay. This is Plaintiffs' Exhibit 254. Do you see that
19 the date of this report is October 5th, 2018?

20 A. Yes.

21 Q. And this is the report where she disclosed that she was
22 using a 45 percent BVAP? Do you recall that?

23 A. I do.

24 Q. Okay.

25 MS. THOMAS-LUNDBORG: If we could go to P87, page

1 eight. And I'm in the paragraph Minority Districts.

2 Q. Okay. This is Dr. Cho's report. If you could read the
3 second -- the second sentence in this report beginning with
4 "Consistent."

5 A. "Consistent with the recommendation from Dr. Lisa Handley
6 that a 45% BVAP is sufficient to satisfy the Voting Rights Act
7 in the vicinity of District 11 in the challenged plan, I have
8 integrated this 45% BVAP requirement in the drawing of my
9 maps."

10 Q. Okay. And I believe you were shown a number of times
11 Plaintiffs' Demonstrative Exhibit 20. If we could go to that.
12 And this is an exhibit of the current District 11; is that
13 right?

14 A. Correct.

15 Q. And that includes parts of Cuyahoga County?

16 A. It includes parts.

17 Q. And it includes Cleveland?

18 A. Parts of it, yeah.

19 MS. THOMAS-LUNDBORG: So this is a copy of Dr. Cho's
20 testimony. I will hand it to the witness and the panel.
21 Unfortunately, I only have one copy to share -- or, I have no
22 copies to share with opposing counsel, but opposing counsel
23 used it and they are trial transcripts that have gone to
24 everyone.

25 JUDGE BLACK: Very well.

1 MS. THOMAS-LUNDBORG: Okay. I'm in the trial
2 transcript for this case from Friday, March 8, 2019. And if we
3 could go to page --

4 Sorry. I'm trying to see what this page number is.

5 JUDGE WATSON: It's 175.

6 MS. THOMAS-LUNDBORG: I believe that this is page 72
7 of 291, and I'm at line 9 through line 15. This is fine.

8 Q. Dr. Cho testified on Friday, when asked:

9 "Now, yesterday you testified that you checked to confirm
10 that the VRA district in each of your maps was drawn within the
11 Cleveland area. Do you recall that?"

12 "Answer: Yes."

13 Is it your testimony today that this testimony by Dr. Cho
14 is inconsistent with what she said about her map in her expert
15 report?

16 A. It's unclear. Right? Again, there's no specificity about
17 where the district is. Right? Either before -- right?

18 When you talk about the Cleveland vicinity, what does that
19 mean. Right? And here -- right? -- the Cleveland area, is it
20 fully contained in Cuyahoga County or is it not? And, again,
21 all these problems would have been solved if we saw even one of
22 the maps of the 3 million that she produced.

23 Q. My question is, is what Dr. Cho testified at trial
24 inconsistent with what is in her expert report?

25 A. It's slightly different.

1 Q. Is it inconsistent with what is in her expert report?

2 A. It's slightly different.

3 Q. Do you recall at your deposition I asked you if you
4 intended to offer any opinions on -- of Dr. Handley's report
5 that are not in your expert report?

6 A. I don't recall it, but I assume that you did.

7 Q. And do you recall asserting that you did not intend to
8 offer any opinions of Dr. Handley's report that were not in
9 your expert report?

10 A. I don't recall specifically what I said.

11 Q. Okay. Then let's go to that page of your deposition.

12 A. Yes.

13 MS. THOMAS-LUNDBORG: If we could go to page 82. And
14 I'm starting at line 6 through line 15.

15 Q. So I asked the question and you asked if there was a
16 rebuttal report, and then this question came after that:

17 "Okay. She did not write a rebuttal report, and since
18 there is no rebuttal report, what opinions of her original
19 report do you intend to offer that are not in your rebuttal
20 report?

21 "Answer: I don't have anything planned at the moment.

22 "Question: You understand that the purpose of your report
23 was to disclose your opinions in this case?

24 "Answer: Yes."

25 MS. THOMAS-LUNDBORG: If we could go to the disclosed

1 opinions in this case, which are Intervenor's Exhibit 60. And
2 just bear with me while I get the page number. Page 18.

3 Q. Do you recognize this as your critique of Dr. Handley in
4 your expert report?

5 A. Yes.

6 Q. Could you read what you said?

7 A. Sure.

8 "Dr. Handley recommends the majority African-American
9 district be at least with 45 percent black voting age
10 percentage in Ohio. It is interesting to note that Dr. Handley
11 recommended a majority African-American district of over 61
12 percent BVAP in a recent lawsuit in Euclid, Ohio, which is in
13 Cuyahoga County," and then I cite the case.

14 Q. And this was the extent of your expert opinion on Dr.
15 Handley's report in your report; correct?

16 A. That's what was in my report, yep.

17 Q. Now, in addition to reviewing Dr. Handley's initial report,
18 you had Dr. Handley's data; is that correct?

19 A. I believe that's correct.

20 Q. And you looked at that data?

21 A. I think that I did.

22 Q. And you also discussed Dr. Handley's data with Mr. Clark
23 Bensen?

24 A. I believe that we did.

25 Q. Now, you've testified in the past as an expert witness in

1 voting rights cases; is that correct?

2 A. That's correct.

3 Q. And as part of your testimony you conducted racially
4 polarized voting analysis; is that correct?

5 A. I have.

6 Q. And there are three tests to determine if there is racially
7 polarized voting; is that right?

8 A. Well, there's various tests.

9 Q. Okay. Are you familiar with the homogeneous precinct
10 analysis?

11 A. Yes.

12 Q. And is that one of the tests to determine if there's
13 racially polarized voting?

14 A. Yes.

15 Q. And are you familiar with ecological regression?

16 A. Yes.

17 Q. Is that one of the tests to determine if there's racially
18 polarized voting?

19 A. Yes.

20 Q. Are you familiar with ecological inference?

21 A. Yes.

22 Q. Is that one of the tests used to determine if there's
23 racially polarized voting?

24 A. Yes.

25 Q. And Dr. Handley conducted all three tests?

1 A. I believe that's correct.

2 Q. Have you conducted any of the tests for this case?

3 A. Any -- I have done no voting -- racial bloc voting analysis
4 on my own for this case.

5 MS. THOMAS-LUNDBORG: If we could go to what was
6 marked as Intervenors' 132, which is the map of the Board of
7 Elections municipalities. I have one -- if we could actually
8 look at the color-coded one.

9 Q. Okay. Looking at this map, do you know what the racial
10 breakdown is of the counties in red?

11 A. They aren't counties. The parts of the county? I don't
12 know the racial breakdown for each one of those.

13 Q. Do you know what the racial breakdown is of the areas in
14 white?

15 A. No, not specifically.

16 Q. Are you aware that, based on census data, the red areas
17 have a black voting age population of 1.7 percent?

18 MS. McKNIGHT: Objection, Your Honor.

19 JUDGE BLACK: Basis?

20 MS. McKNIGHT: This assumes facts not in the record.
21 Thank you.

22 JUDGE BLACK: The objection's noted.

23 Q. Are you aware --

24 A. Could you repeat it again?

25 Q. Are you aware that the red areas have census -- the census

1 data says that these red areas have a black voting age
2 population of 1.7 percent?

3 A. I don't know if that's true or not.

4 Q. Are you aware that Huntington Valley (verbatim), which is
5 in this map, has two percent black voters?

6 A. I'm not aware of that.

7 Q. Well, what about Valley View: Do you know what the
8 African-American voter percentage is in Valley View?

9 A. I don't.

10 Q. Bentleyville, which is also in this map?

11 A. Not specifically, no.

12 MS. McKNIGHT: Your Honor, I don't mean to interrupt,
13 just I'd like to note a standing objection to facts not in the
14 record.

15 JUDGE BLACK: Very well.

16 MS. McKNIGHT: Thank you.

17 MS. THOMAS-LUNDBORG: And my only response is I'm
18 trying to understand the nature of this newly-disclosed exhibit
19 and what the witness knows about it.

20 JUDGE BLACK: Very well.

21 Q. What are the populations of the red areas? Do you know
22 what that is?

23 A. What do you mean, the populations?

24 Q. What's the population number?

25 A. Oh. What's the total population?

1 Q. In red.

2 A. In the red areas?

3 Q. Yes.

4 A. I don't know a specific number.

5 Q. Do you know a relative number?

6 A. No.

7 Q. Do you know what the population number is of the areas in
8 white?

9 A. No, not specifically.

10 Q. Do you know if more people live in the areas in white than
11 in the areas in red?

12 A. I don't.

13 Q. Now, getting back to your work on Dr. Handley's data. You
14 reviewed Dr. Handley's data, and you found no errors in her
15 data?

16 A. I don't recall saying that. I assume that's in the
17 deposition, but if we want to review that --

18 Q. Okay.

19 A. -- you could show me where it is.

20 MS. THOMAS-LUNDBORG: If we could go to page 88 of Dr.
21 Brunell's deposition.

22 Q. Starting at line 17, down to 25.

23 A. Right.

24 Q. "Okay, and we've discussed" --

25 "Question: Okay, and we've discussed you received Dr.

1 Handley's data, correct?

2 "Answer: Yes.

3 "Question: You reviewed her data, correct?

4 "Answer: I looked at it.

5 "Question: Did you find any error in her data?

6 "Answer: None that I found, no."

7 MS. THOMAS-LUNDBORG: And then if we could move on to
8 the next page.

9 Q. "Question," which starts at line 24 on the previous page:

10 "Did you find any errors in her calculations?

11 "Answer: I didn't find any, no."

12 A. Correct.

13 Q. Did I read that correctly?

14 A. Yes, ma'am.

15 Q. You testified at your deposition that you did not conduct
16 any racially polarized voting analysis because you weren't
17 asked to; is that right?

18 A. I don't recall.

19 Q. You don't recall whether you were asked to or whether that
20 was your testimony?

21 A. Whether that was my testimony.

22 Q. Do you recall whether you were asked to?

23 A. Yeah, I wasn't asked to.

24 Q. Now, at your deposition you couldn't tell me the black
25 voting age population needed to meet VRA requirements in Ohio's

1 congressional district in Cuyahoga County; is that right?

2 A. Correct.

3 Q. Do you recall being asked by intervenors' counsel about
4 packing?

5 A. Earlier today, yes.

6 Q. Yes. And do you recall testifying that over 50 percent,
7 close to 50 percent was not packing?

8 A. Correct.

9 Q. Are you familiar with *Cooper v. Harris* in the Supreme Court
10 in 2017?

11 A. Not specifically.

12 Q. Are you aware that the Supreme Court there found that a
13 district with 50.7 percent BVAP was an unconstitutional racial
14 gerrymander?

15 MS. McKNIGHT: Your Honor, I would object on two
16 points: Asks for a legal conclusion and, also, relevance. She
17 is identifying a 2017 case. I was asking Dr. Brunell about
18 what was going on in 2011.

19 JUDGE BLACK: The objections are noted.

20 MS. McKNIGHT: Thank you.

21 MS. THOMAS-LUNDBORG: Your Honor, we would ask that
22 the Court take judicial notice of the Supreme Court decision in
23 *Cooper v. Harris*.

24 JUDGE BLACK: Yeah, it's a Supreme Court decision.

25 MS. THOMAS-LUNDBORG: Okay.

1 Q. Now, I'd like to touch on your expert report and its
2 discussion of Euclid. Do you recall that?

3 A. Yes.

4 Q. Do you know what portion of Cuyahoga County is Euclid?

5 A. I believe it's, like, the north part of Cuyahoga County.

6 Q. Okay. Do you know how big Euclid is?

7 A. In terms of square miles or people?

8 Q. In terms of population.

9 A. No.

10 Q. Do you know how the population of Euclid compares to the
11 population of, for example, Cleveland?

12 A. In terms of, like, racial and ethnic backgrounds?

13 Q. In terms of racial and ethnic background, but also just
14 total population.

15 A. The -- I mean, the county, obviously, had more people than
16 Euclid.

17 Q. My question is, is Cleveland bigger than Euclid?

18 A. Cleveland's bigger.

19 Q. Now, you referred to Dr. Handley's analysis in the Euclid
20 case in this case. Would you agree that minorities in cities
21 do not necessarily vote the same?

22 A. As each other?

23 Q. Yes.

24 A. Yes, I would agree.

25 Q. And you would agree that the voting patterns in Euclid do

1 not necessarily reflect the vote patterns in Cleveland?

2 A. Absolutely.

3 Q. Sure. Do you know what election was at issue in the Euclid
4 case?

5 A. I believe it was, like, school board elections.

6 Q. And do you know if those elections were partisan elections?

7 A. I don't. If I -- if I had to guess, I'd say they weren't,
8 but I don't know for sure.

9 Q. Are congressional elections partisan elections?

10 A. Yes, they are.

11 Q. If you were doing a racially polarized analysis for a
12 congressional election, you would look at partisan election
13 outcomes?

14 A. Yes.

15 Q. Are you aware if it's possible to draw a map -- to draw a
16 district in Ohio with 45 percent BVAP in any other area than in
17 the Cuyahoga County area?

18 A. I'm not sure.

19 MS. THOMAS-LUNDBORG: And excuse me if this has been
20 asked and answered. I will withdraw it if so.

21 Q. As you sit here today, can you tell me what the before BVAP
22 should be to meet VRA requirements in the congressional
23 district in Ohio that encompasses Cuyahoga County?

24 A. Well, based on Handley's report, it's 45 percent.

25 Q. And is that your testimony --

1 My question is, can you tell me what the BVAP should be?

2 A. In the Congressional District 11?

3 Q. Yes.

4 A. Not in Cuyahoga County by itself?

5 Q. In the current District 11, in the area of Cuyahoga County,
6 do you have any opinion as to what the BVAP should be?

7 A. For current District 11, I think that Dr. Handley's advice
8 of 45 percent is correct, but that's just -- that's district-
9 specific. That's not for Cuyahoga County. That's for
10 Congressional District 11.

11 Q. Now, a minute ago, we discussed the three different
12 analyses that can be run for racially polarized voting. Do you
13 recall that?

14 A. I do.

15 Q. Do you recall that one of those analyses is Gary King's
16 ecological inference?

17 A. That's correct.

18 Q. And do you recall that that particular analysis looks not
19 just at the district, but at borrowed strength from neighboring
20 districts?

21 A. It does.

22 Q. Now, we've talked a little bit about Dr. Cho's report. You
23 read Dr. Cho's report; is that correct?

24 A. That is correct.

25 Q. And you also read Dr. Cho's rebuttal report; is that

1 correct?

2 A. I did.

3 Q. And that was prior to your deposition?

4 A. I believe that it was.

5 Q. And you not only read her report, but you, at least, had
6 some of the underlying data?

7 A. Yes, I did have some of the -- well, not some of the
8 underlying -- well, some of the data that was produced about
9 the maps that she produced, yes.

10 Q. Okay. And you reviewed that?

11 A. I did.

12 Q. And you reviewed that with Clark Bensen?

13 A. On my own and some I probably talked with Clark about it
14 too.

15 Q. Okay. Do you consider one of your areas of expertise to be
16 operations research?

17 A. No.

18 Q. Do you consider one of your areas of expertise to be
19 computer science?

20 A. No.

21 Q. Now, you were asked some questions by counsel about C and
22 C++. Do you know what the difference is between C and C++?

23 A. I don't --

24 Was I asked that here or in the deposition?

25 Q. I've asked you in your deposition whether you know the

1 difference between C and C++.

2 A. Right. I think you did.

3 I don't recall what I said. I don't -- I'm not versed in
4 C++, and so I don't know the difference between the two of
5 them.

6 Q. And Dr. Cho's code is in C++; is that right?

7 A. That's what she's said, yes.

8 Q. And you can't program in C++?

9 A. I don't program in C++.

10 Q. And you can sort of read C++ but you're not fluent; is that
11 right?

12 A. That's what I testified to, that's correct.

13 Q. So you couldn't -- so you couldn't tell whether the code
14 delineates how maps are generated in her model; right?

15 A. I can't tell from C++ code what she's done with maps.

16 Q. Now, you described Dr. Cho's analysis in your report as
17 using complicated algorithms to generate hypothetical
18 congressional districts for Ohio; is that right?

19 A. That sounds right.

20 Q. Did you run any algorithms to generate hypothetical
21 districts for Ohio?

22 A. No.

23 Q. Have you ever generated a set of hypothetical congressional
24 districts using a complicated algorithm such as Dr. Cho?

25 A. I haven't.

1 Q. Do you understand that the purpose of Dr. Cho's analysis is
2 to determine whether or not the enacted map is an outlier in
3 the universe of possible maps?

4 A. That's what she says, yes.

5 Q. You have not run any outlier analysis for Ohio; right?

6 A. I looked at her analysis.

7 Q. Have you run your own analysis for Ohio?

8 A. I did not. I was critiquing what she did.

9 Q. Have you run an outlier analysis like Dr. Cho in any other
10 context?

11 A. In -- I mean, you do outlier analysis all the time, but not
12 with respect to, like, a redistricting case. If that's what
13 she meant specifically, no.

14 Q. You haven't done any independent analysis of Ohio's
15 political geography; right?

16 A. I don't know. That's kind of a big, encompassing question.
17 I don't -- I don't know if I could say that I haven't.

18 Q. If we could look at page 99 of your deposition.

19 A. Sure.

20 Q. I'm on line 4 through line 24. And, actually, I won't
21 extrapolate, because it was long, but the context is there for
22 the Court.

23 I asked at line 4:

24 "Have you done any analysis of Ohio's geography?

25 "Answer: No."

1 MS. McKNIGHT: Your Honor, I would just note for the
2 record there was an objection at the time, likely to the form
3 of the question.

4 JUDGE BLACK: Very well.

5 Q. Now, I think you testified in your direct testimony that
6 Dr. Cho failed to include a number of criteria that you thought
7 were important; right?

8 A. Right.

9 Q. One was incumbency protection -- not in necessarily the
10 order you gave it, but incumbency protection?

11 A. That was one.

12 Q. Equal population?

13 A. Right.

14 Q. And then core retention?

15 A. Right.

16 Q. And those were the main three that you discussed; is that
17 right?

18 A. And then the Voting Rights Act since that time.

19 Q. And the Voting Rights Act. I think we've discussed the
20 Voting Rights Act.

21 A. Right, we have.

22 Q. We may get back to it, but focusing on --

23 A. On those three.

24 Q. Okay. Were there any others that I left out?

25 A. I think that's it.

1 Q. Okay. Is incumbency protection legally required?

2 A. It's not.

3 Q. Is core retention legally required?

4 A. No.

5 Q. What is your basis for saying that incumbency protection
6 should have been included in Dr. Cho's map?

7 A. Because it could have been one of the most important
8 factors that the legislature was trying to use when it was
9 redrawing its map. So in order to make the basis of comparison
10 -- right? -- you have to have -- you have to be drawing similar
11 maps -- right? -- to the -- to the enacted map in order to do
12 an outlier analysis. And so to the extent that she used
13 different factors, different criteria in her programming, that
14 calls into question the utility of making these comparisons.

15 Q. Do you know what role incumbency protection played in the
16 legislative decision here?

17 A. I mean, it's hard to quantify. I think it played a role.

18 Q. And what's the basis for your opinion?

19 A. I think there might have been some testimony early on about
20 that, but I don't -- I don't recall specifically.

21 Q. Okay. Are you aware that the legislator paired three
22 instead of two incumbents?

23 A. I don't know what you mean.

24 Q. Three sets of incumbents instead of two sets of incumbents.
25 Were you aware of that?

1 A. I think I've seen that in the testimony, yes.

2 Q. And that was more incumbents than necessary?

3 A. The -- the bare minimum was pairing two, and three is more
4 than two.

5 THE COURT: Will you tell me when a good time is to
6 break?

7 MS. THOMAS-LUNDBORG: We could break now.

8 JUDGE BLACK: How much more do you think you have?

9 MS. THOMAS-LUNDBORG: I'm about halfway done.

10 JUDGE BLACK: I think we should take our lunch break
11 now. It's high noon, a couple of minutes after. I'd like to
12 break until 1:05.

13 During the period of the break, the witness is not to
14 discuss his testimony.

15 And he understands; correct?

16 THE WITNESS: I do. I do, Your Honor.

17 JUDGE BLACK: All right. Lunch break.

18 COURTROOM DEPUTY: All rise. This court is in recess
19 until 1:05.

20 (Witness temporarily excused.)

21 (At 12:04 PM, a luncheon recess was taken.)

22 - - -

23 AFTERNOON SESSION

24 (Thomas Brunell resumes the witness stand.)

25 (In open court at 1:04 PM.)

1 JUDGE BLACK: Thank you. Please be seated.

2 We're back on the record in the open courtroom. It's 1:05.
3 The plaintiffs' lawyers are here, the defense lawyers are here,
4 the intervenors' lawyers are here. The witness is on the
5 stand.

6 You remain under oath. You understand, sir?

7 THE WITNESS: Yes, Your Honor.

8 JUDGE BLACK: Very well. Counsel, you may proceed
9 when you're ready.

10 MS. THOMAS-LUNDBORG: Thank you, Your Honor.

11 CROSS-EXAMINATION (Continued)

12 BY MS. THOMAS-LUNDBORG:

13 Q. Good afternoon, Dr. Brunell.

14 A. Good afternoon.

15 Q. When we went on lunch break we were discussing the
16 traditional redistricting criteria that you said Dr. Cho did
17 not consider in her simulation. And just by way of reminder,
18 we had listed incumbency protection, core retention, equal
19 population, and then VRA. So I think we've now discussed
20 incumbency, so I will move on to the other ones.

21 A. Sure.

22 Q. Now, I believe I asked you right before break, but just a
23 refresher of everyone's recollection, is retention of cores a
24 legally required criteria?

25 A. It is not.

1 Q. Now, we discussed -- during your direct you discussed a
2 book that you published; is that right?

3 A. I did.

4 MS. THOMAS-LUNDBORG: And if I could go to Impeachment
5 Exhibit 34. And if we could go to chapter four. Yes. Just
6 the very first page of chapter four. We're going to do some
7 scrolling through.

8 Q. I also have paper copies if that would be helpful to you.

9 A. If you blow up things, that -- that works, yeah.

10 Q. Okay. Great.

11 So this chapter in your book is titled "Traditional
12 Redistricting Principles," right?

13 A. It is.

14 Q. And within this chapter you highlight some traditional
15 redistricting principles; right?

16 A. That's correct.

17 Q. Okay. On page 51, the first one is "single-member
18 districts"; is that right?

19 A. Yes.

20 Q. And then we can just quickly move on to the next one, if
21 you flip. Page 52, "equal population" is another one; is that
22 right?

23 A. Yes.

24 Q. Okay. And then on page 58, "contiguity" is one?

25 A. Right.

1 Q. And then on page 59, "compactness" is one?

2 A. Yes.

3 Q. And then on page 66, "preserve communities of interest" is
4 one; right?

5 A. Correct.

6 Q. And then on page 68, the "protecting incumbents"?

7 A. Correct.

8 Q. And then on page 70, "VRA"?

9 A. Yes.

10 Q. And I'll represent that there are no other subheadings in
11 your book.

12 A. Okay.

13 Q. Number of these subheadings were preservation of cores;
14 correct?

15 A. They were not.

16 Q. Do you know how the map drawers operationalized
17 preservation of cores for Ohio's map?

18 A. No, I don't.

19 Q. How would you recommend that a simulations expert
20 operationalize preservations of core?

21 A. Well, you would -- what you could do is you take the
22 benchmark district -- right? -- the districts before
23 redistricting, and then you take the new districts that were
24 drawn, and then you could measure the extent to which they
25 overlap. Right? And you would do it by population, not by

1 square miles. Right? It's how many people are in the same
2 district. And then that would give you a measure of core
3 retention.

4 And then she could put that -- an additional parameter in
5 her model, like she did with lots of other parameters, to say
6 core retention has to be at least .5, half, something like
7 that. So that's how she could do it.

8 Q. And have you ever done something like that for a
9 simulation?

10 A. I have not.

11 Q. Okay. Just quickly, we discussed a bit, or a lot, the
12 Voting Rights Act; correct?

13 A. Yes.

14 Q. Have you ever created a VRA district as part of a
15 districting simulation?

16 A. Have I ever drawn --

17 Q. As part of a simulation, have you ever had to create a VRA
18 district in the simulation context?

19 A. No.

20 Q. And you don't have a recommendation for how simulations
21 should treat VRA districts; right?

22 A. No -- I think I might. I've seen in other cases where
23 plaintiffs' experts do simulations similar to those that
24 Professor Cho did. And what they do is, they just lock in the
25 VRA district. Right? And then -- all the other -- so that

1 district or those districts, depending on the state, the VRA
2 districts are just locked in and they don't change. And then
3 the rest of the map, the simulations change around those
4 locked-in districts. So that's another approach that could be
5 taken.

6 Q. And that's an approach that you have criticized; correct?

7 A. Yes.

8 Q. And you criticized Dr. Chen for that approach in Michigan;
9 correct?

10 A. I believe that I did.

11 Q. Okay. And when I asked you at your deposition whether you
12 had a recommendation for how simulations should be drawn, you
13 did not have a recommendation at that time?

14 A. Okay.

15 Q. Is that a yes?

16 A. I believe you, if that's what you're saying. I don't
17 recall the specific question and answer.

18 Q. Would it help to refresh your recollection by looking at
19 your deposition transcript?

20 A. If you would like me to, I'm happy to do it.

21 MS. THOMAS-LUNDBORG: Okay. If we could pull up page
22 116 of Dr. Brunell's deposition. And I'm on line 19, and it's
23 going to spill over to the other page, to line 3 on the other
24 page.

25 Q. "Question: I have -- putting aside your question about

1 looking at the actual maps, do you have a recommendation for
2 how simulations should treat VRA districts?

3 "Answer: I haven't -- I've never done it, so I wouldn't --
4 I would have to give that some thought. I don't have some rote
5 answer off the top of my head for you."

6 Does that refresh your recollection that that was your
7 testimony at that time?

8 A. Yes.

9 Q. Okay. The other traditional redistricting criteria that
10 you criticized Dr. Cho for is equal population; is that right?

11 A. Correct.

12 Q. And you would agree that election outcomes are not
13 available at the census block level; right?

14 A. They're available at the voting tabulation district level.

15 Q. Are they available at the census block level?

16 A. I honestly don't know if you could aggregate two census
17 block levels from voting tabulation district levels.

18 Q. You've criticized experts in the past for using voting
19 results at the below-the-census-block level; correct?

20 A. I don't know.

21 Q. Well, you don't know. Okay.

22 A. I don't recall.

23 MS. THOMAS-LUNDBORG: If we could look at Impeachment
24 Exhibit 33. And if we could go to, actually --

25 Q. This is your deposition testimony in the case of *Ohio State*

1 *Conference for the National Association of the Advancement of*
2 *Colored People versus Husted*, and the deposition was taken on
3 July 30th, 2014.

4 If we could go to page 138. And I'm starting in the
5 line -- on line 15.

6 "Question. But you claim that there are problems as well
7 in using this smaller unit. What do you claim are the
8 problems?

9 "Answer: Well, I mean, first, I've never seen anybody use
10 census block data."

11 Did I read that correctly?

12 A. That looks correct.

13 Q. And Dr. Cho constructs her maps at the precinct level and
14 not the census block level; is that right?

15 A. I believe that's the case.

16 Q. And you would need to use census blocks in order to
17 equalize population; is that right?

18 A. Not necessarily. I don't think so.

19 Q. I believe -- okay. Well, I think we can look at the direct
20 testimony.

21 Now, just so we're clear, you believe using equal
22 population is important; is that right?

23 A. Correct.

24 Q. And that started with *Baker v. Carr* in 1972; is that right?

25 A. Right.

1 Q. Okay. Now, one of your other critiques of Dr. Cho is her
2 use of responsiveness; is that right?

3 A. Yes, I believe I talked about responsiveness.

4 Q. And you look at responsiveness --

5 MS. THOMAS-LUNDBORG: Actually, if we could go to
6 Intervenor's Exhibit 60, page seven.

7 Q. And I believe this is where you start your analysis of
8 responsiveness.

9 And one of the things that you do is you compare Dr. Cho's
10 analysis to Tufte; is that right?

11 A. Tufte.

12 Q. Tufte.

13 A. No problem.

14 Q. Sorry. I didn't get it at deposition and I did not get it
15 today. Okay. Tufte.

16 And according to your report, Tufte looks at all
17 jurisdictions that predate *Baker v. Carr*; right?

18 A. No, I don't think so.

19 Q. Does he have any jurisdictions that post-date 1970 in his
20 data set?

21 A. I think *Baker v. Carr* was in the '60s.

22 Q. 1972, I believe, is what we just said.

23 A. Is that right?

24 Q. Yes.

25 MS. McKNIGHT: Your Honor, we don't mean to interrupt.

1 We'd just like to enter our objection assuming either erroneous
2 facts or facts not in the record. Thank you.

3 JUDGE BLACK: Very well.

4 Q. I believe, and I'll find the direct -- Dr. Brunell states
5 what the data set is for Tufte, so I will find it for everyone.

6 A. I mean, the dates are listed for what Tufte uses. And
7 they -- the latest -- he published this piece in, I believe,
8 1973. And the data --

9 So this is responsiveness. It doesn't have anything to do
10 with one person, one vote. Those are two completely different
11 things. So it wouldn't have any impact -- *Baker v. Carr*
12 wouldn't affect it. But the dates all end -- the latest data
13 in the table is 1970.

14 Q. And just so I can clearly understand what your critique of
15 Dr. Cho was, is that you can't compare maps that have equal
16 population versus maps that don't; is that right?

17 A. I don't think that was my testimony.

18 Q. What is your critique of Dr. Cho's use of or not use of
19 equal population?

20 A. Oh, oh. No, maybe you did -- you might have characterized
21 that correctly.

22 So she doesn't draw maps that are equally populous, which
23 is required for congressional elections, and, therefore, they
24 aren't suitable substitutes for the enacted map. And then they
25 might -- they're not good comparisons.

1 Q. If we could go back to your report, it was Intervenor's
2 Exhibit -- Intervenor's Exhibit 7. I'm sorry, 60. Page seven.
3 And the line that begins with, "Three is actually" -- yeah.
4 "Three is actually quite responsive to voters," kind of midway
5 down. Yes.

6 A. I see it.

7 Q. And this is your discussion of responsiveness; is that
8 right?

9 A. Yes, this is part of it.

10 Q. And if you could read that first sentence. I just want to
11 discuss it a little bit to make sure I understand it correctly.

12 A. Starting with the word "Maps" or --

13 Q. "Three is actually," the highlighted.

14 A. Okay. "Three is actually quite responsive to voters" --
15 that's the level. Three is the level of the swing ratio.
16 "Three is actually quite responsive to voters, indicating that
17 for every additional one percent of the vote, a party can
18 expect to get an additional three percent of the seats."

19 Q. Okay. And if you could go on.

20 A. "So if the party gets 54 percent of the seats with 51
21 percent of the vote, if their vote share increases to 52
22 percent, we would expect their share of the seats to increase
23 to 57 percent."

24 MS. THOMAS-LUNDBORG: Okay. If we could move this
25 particular language off to the side and then open Plaintiffs'

1 Exhibit 571. And page 16, Figure 2. Okay.

2 Q. Dr. Warshaw also ran a responsiveness analysis; correct?

3 A. I believe that's correct.

4 Q. And that's what is represented here in Figure 2; is that
5 correct?

6 A. Yes.

7 Q. Okay. And so you use the example of what would be the
8 expectation of seats moving in a responsiveness curve to find
9 that Ohio is responsive; is that right?

10 A. Yes.

11 Q. Okay. According to Dr. -- I'm sorry -- Dr. Warshaw's
12 analysis, how many seats would a Democrat get with 20 -- with
13 30 percent of the vote? Let's do something easy.

14 A. It looks like between 20 -- it looks like it's between 20
15 and 30 percent of the seats.

16 Q. And with 40 percent of the vote?

17 A. The same.

18 Q. And with 50 percent of the vote?

19 A. The same.

20 Q. And so according to the S curve drawn by Dr. Warshaw,
21 there's no change in the seat share between 30 and 50 percent
22 at a minimum in Ohio?

23 A. That's correct. Although, in the -- on the lower bounds we
24 don't expect a lot of action. It's really kind of in the
25 competitive region. But your statement is correct.

1 Q. Now turning to Dr. Warshaw's report. I think we can remove
2 your report.

3 You had the expert report of Dr. Warshaw before you wrote
4 your report, at least his initial report?

5 A. Yes.

6 Q. And you had his rebuttal report before your deposition; is
7 that right?

8 A. I believe that that's true.

9 Q. And you not only read Dr. Warshaw's report, but you read
10 the underlying data accompanying it; is that right?

11 A. I -- I read the data?

12 Q. You reviewed the data?

13 A. I had the data, for sure.

14 Q. And you reviewed the data?

15 A. To what extent I did, I don't recall, but I'm pretty sure I
16 looked at it.

17 Q. Okay. And when you reviewed his data, you didn't find any
18 errors in Dr. Warshaw's data?

19 A. I don't recall reporting any, no.

20 Q. Now, in Dr. Warshaw's report he writes about partisan bias;
21 is that right?

22 A. Yes.

23 Q. And you've written about prior partisan bias in the past;
24 is that right?

25 A. That's correct.

1 Q. And there are multiple ways of calculating partisan bias;
2 is that right?

3 A. There is.

4 Q. And you're familiar with those methods of calculating
5 partisan bias?

6 A. Yes.

7 Q. Now, in your report you only provide a critique of the
8 efficiency gap; is that right?

9 A. For Warshaw?

10 Q. Yes.

11 A. I know that's what I concentrated on. I don't know if I
12 mentioned any of the -- any of the other ones or not, but I
13 know that the efficiency gap was really the concentration.

14 Q. Did you critique any of the other measures in your report?

15 A. I would have to look really quickly.

16 In his section, the efficiency gap is the only one of the
17 metrics that he uses that I mention.

18 Q. Okay. Now, one of your critiques of Dr. Warshaw is his use
19 of congressional election data; is that right?

20 A. Correct.

21 Q. And we talked about the fact that you've calculated
22 partisan bias measures in the past. Have you calculated
23 partisan bias measures as part of cases in the past, as part of
24 your expert testimony in the past?

25 A. I believe I have.

1 Q. Okay. And one of those cases was *Vieth*; is that right?

2 A. Yes.

3 Q. And in *Vieth* you calculated hypothetical swing; right?

4 A. Right. I do remember doing uniform partisan swing in that
5 case.

6 Q. And when you calculated partisan uniform swing, you used
7 congressional election data; is that right?

8 A. I don't recall. That was 20 years ago.

9 MS. THOMAS-LUNDBORG: Okay. If we could go to
10 Impeachment Exhibit 65. This is from Westlaw.

11 Q. The citation is here, and it states that it is your partial
12 testimony from February 26, 2002.

13 MS. THOMAS-LUNDBORG: And if we could move to the
14 question on page two -- or the answer on page two.

15 Q. And I will read your answer:

16 "Again, with hypothetical swing, the other method I would
17 use is congressional election data. I can't think of any
18 others off the top of my head that you'd use statewide election
19 data to get an estimate of partisan bias, a point estimate."

20 So at least you testified that congressional election data
21 could be used?

22 A. Right. That's the other method. Presumably, I used
23 statewide elections in this testimony. I don't know, but it
24 sounds like that's what I'm saying, that you could also use
25 congressional election data.

1 Q. Okay. You would agree that statewide elections ultimately
2 do not, in fact, elect any legislators?

3 A. I do.

4 Q. And you would, therefore, agree that congressional election
5 data should be used instead of statewide election data?

6 A. No. I disagree.

7 MS. THOMAS-LUNDBORG: Okay. Could we look at
8 Impeachment Exhibit 37.

9 Q. This is your expert testimony in the Michigan case; is that
10 right?

11 A. I don't know.

12 Q. Would you like to have a paper copy?

13 A. Sure.

14 (Ms. Thomas-Lundborg hands document to the witness.)

15 THE WITNESS: Thank you.

16 MS. McKNIGHT: Your Honor, we don't mean to interrupt.
17 I would like to lodge a standing objection to the propriety of
18 use of what are termed impeachment exhibits. An example,
19 earlier, it was not an impeachment exhibit. It was used to
20 refresh recollection. We have other examples where the
21 testimony is consistent, so it is not a proper impeachment
22 exhibit. I will note the standing objection now. We can deal
23 with this later during briefing on exhibits and testimony.

24 JUDGE BLACK: Thank you. Noted.

25 Q. On page six of your report, you critique Dr. Jowei Chen; is

1 that right?

2 A. It looks like it, yes.

3 Q. Do you recall this?

4 A. I mean, I wrote the report and -- I don't recall all the
5 specifics of it, but this is the report that I wrote for that
6 case, yes.

7 Q. And do you recall critiquing Dr. Chen's use of statewide
8 data instead of congressional election data?

9 A. It looks like that's what is going on on this page, yes.

10 Q. Okay. And you state on page six, as part of your critique
11 of Dr. Chen's use of statewide data and not congressional data,
12 that statewide elections ultimately do not, in fact, elect any
13 legislators; is that right?

14 A. Where is that?

15 Q. I believe -- and I gave away my copy to counsel, but I
16 believe it's on page six. Yes. It's underlined. It's at the
17 top. So it's not in the -- actually, if we could. And it's
18 the last sentence in the top paragraph: "Statewide elections
19 ultimately do not, in fact, elect any legislators."

20 A. That's correct.

21 Q. Okay. Now, I'd like to get to data sources used by Dr.
22 Warshaw. He uses surveys as one source of data.

23 A. Okay.

24 Q. Are you aware of that?

25 A. I think I recall him using the CCES in part of his report.

1 Q. Okay. And you've used surveys in the past?

2 A. I have.

3 Q. And you're familiar with the CCES?

4 A. Yes.

5 Q. And the survey has -- among one of its authors is
6 Ansolabehere. Is that right?

7 A. I believe that's true.

8 MS. THOMAS-LUNDBORG: I will give you the spelling.
9 Ansolabehere is the name for the record, but difficult to
10 spell.

11 Q. And you've cited Ansolabehere's work in your peer-reviewed
12 work; right?

13 A. I'm sure I have.

14 Q. Now, we talked a little bit about partisan bias metrics.
15 Did you do any analysis of the durability of the efficiency gap
16 in Ohio?

17 A. No.

18 Q. Did you do any analysis of the durability of the other
19 partisan bias metrics in Ohio?

20 A. I did not.

21 Q. And Dr. Warshaw conducted a durability analysis on all of
22 the partisan bias metrics in his report?

23 A. I don't know. Are you telling me that he did?

24 Q. I'm asking you if you are aware of that.

25 A. I don't recall.

1 Q. Okay. One of your criticisms that I think you said on
2 direct and in your report of the efficiency gap is its use of
3 wasted votes; is that right?

4 A. Yes.

5 Q. And you've used a term "wasted votes" in your writing in
6 the past?

7 A. I have.

8 Q. And you've defined "wasted votes" as votes for the losing
9 candidate in your prior work?

10 A. I think that's what I said in the book, yes.

11 Q. And you've also referred to wasted votes as votes in excess
12 of what is needed to win for the winning candidate, in your
13 prior work; is that right?

14 A. Maybe, yeah.

15 Q. Is that a yes?

16 A. I don't know. I mean, I don't -- I can't remember
17 everything that I've written, I'm afraid.

18 MS. THOMAS-LUNDBORG: Okay. If we could look at IM22,
19 page 474. And it is in the middle -- oop. Sorry. No. It's
20 the first -- I think we have to remove what we currently have.
21 Yes, the first full paragraph.

22 Q. I'm in the middle of the sentence where you state, "One
23 party wastes more of its votes by winning with much greater
24 average margins than does the other party"; is that right?

25 A. Correct.

1 Q. Okay. So here you're using "wasted votes" as votes for the
2 winning party; is that right?

3 A. Yes.

4 Q. So your only quibble with the efficiency gap is the way in
5 which winning votes are calculated when it comes to wasted
6 votes?

7 A. Yes, that's right, when it comes to wasted votes.

8 Q. Now, I understood that one of your critiques of Dr. Warshaw
9 was his use of imputations, going back to the data source that
10 he used; is that right?

11 A. Imputation and -- what -- what he has to do with
12 uncontested elections.

13 Q. Okay. And he imputed uncontested elections using a
14 regression model; is that right?

15 A. I believe that's true.

16 Q. And that regression model includes a value or a way to
17 conceptualize incumbency; is that right?

18 A. I believe that that's true.

19 Q. Okay. You agree that polarization has increased in
20 Congress; is that right?

21 A. Yes.

22 Q. And you would agree that increased party polarization is,
23 arguably, the most important phenomenon of the modern U.S.
24 Congress; is that right?

25 A. I think it's becoming -- in political science, everybody

1 that studies Congress is studying polarization. So, yes, it's
2 becoming sort of the -- the dominant paradigm for the way that
3 we study Congress.

4 Q. And when you have studied polarization in the past, you've
5 used the DW-Nominate score?

6 A. Yes.

7 Q. And that's the same score that Dr. Warshaw uses?

8 A. I believe that that's correct.

9 Q. And you would agree that a change in a party that
10 represents a given district currently generates a huge
11 difference in the voting behavior of the representative?

12 A. It can, since the parties are polarized. Right? When a
13 district swings from Democrat to Republican, since there's not
14 as much overlap between the parties as there used to be, the
15 change could be big. But it's going to differ from -- you
16 know, it depends. It depends on what the incumbent looked
17 like -- not what they looked like, but how they voted, what
18 their ideology was, and with the new person, how they vote.

19 Q. And you would agree that when voters' preferred candidate
20 loses, this means the government is less likely to enact the
21 kinds of policies that those voters prefer?

22 A. Yes. Again, the -- you know, in terms of responsiveness
23 and representation, if you vote for the losing candidate --
24 right? -- on average you're going to be less well represented
25 then if you voted for the winning candidate. But -- you're

1 probably not going to be completely unrepresented. Right?

2 It's a continuum. It's not yes or no, but it's to what degree
3 are you represented.

4 Q. Okay. Given your statement now and statements that you
5 made on direct --

6 MS. THOMAS-LUNDBORG: I would like to show Impeachment
7 Exhibit 34, which is your book, and I'm going to actually move
8 that into evidence after I'm done with this question.

9 If we could go to page 78. Okay. And it will take me a
10 minute to find this on the page.

11 It is in the first paragraph, middle of the paragraph.

12 Q. This is from your book. And you state -- the sentence
13 beginning with "One".

14 "One of the downsides of single-member district electoral
15 systems is that, inevitably, there will be a significant
16 proportion of the voting electorate whose votes are wasted
17 (i.e., they vote for a losing candidate and end up with no
18 representation)."

19 Did I read that correctly?

20 A. You did. That was a little bit -- I should have been a
21 little bit more careful with my -- with my words there at the
22 end, but that is what it says.

23 Q. You found in the past that voters whose preferred candidate
24 wins the election are much more likely to be well represented
25 in Congress and more likely to have positive attitudes towards

1 the government; is that right?

2 A. That is true.

3 Q. All right. You also believe that we should substantively
4 care about attitudes that Americans have toward the government
5 because dissatisfaction and cynicism can lead to less trust in
6 government?

7 A. It sounds like you're reading from the book, and that seems
8 like a reasonable thing. So I'm -- I'm sure that I -- that I
9 wrote that. That sounds right.

10 Q. You also believe that the less people trust in government,
11 the less likely they are to feel efficacious and participate in
12 the political system through traditional avenues such as
13 voting?

14 A. Yes, I think that that's right.

15 Q. And you've demonstrated through your own work that winning
16 voters are systematically happier with their member of Congress
17 in addition to being more satisfied with Congress as an
18 institution?

19 A. That's true.

20 Q. Now, earlier you gave some testimony about your support of
21 uncompetitive elections. That's not an endorsement of
22 gerrymandering; is that right?

23 A. Well, I don't think that it is. Quite the opposite. You
24 might mean something different by gerrymandering than I do,
25 but -- that's an absolute -- I don't -- it's not an endorsement

1 of gerrymandering.

2 Q. And you would agree that partisan gerrymandering is a huge
3 problem in modern redistricting?

4 A. It is.

5 Q. And you would agree that partisan gerrymandering distorts
6 how voter preferences get translated into public policy?

7 A. It can.

8 MS. THOMAS-LUNDBORG: I have no further questions.

9 JUDGE BLACK: Very well.

10 MS. THOMAS-LUNDBORG: Oh, I'm sorry. I would like to
11 move in Impeachment Exhibit 34.

12 JUDGE BLACK: Any objection?

13 MS. McKNIGHT: We'll note our objection on the grounds
14 of Rule 612 and 613, and we'll prepare to brief them later.

15 JUDGE BLACK: Noted. Thank you.

16 REDIRECT EXAMINATION

17 BY MS. McKNIGHT:

18 Q. Good afternoon, Dr. Brunell. I have just a few topics I'd
19 like to discuss with you.

20 A. Okay.

21 Q. The first thing is I'd like to bring up Intervenors'
22 Exhibit 60, which is your report.

23 A. Okay.

24 Q. Page nine, Dr. Brunell.

25 A. Yes.

1 Q. Do you recall plaintiffs' counsel's question about your
2 table regarding the Tufte analysis shown here on page nine?

3 A. I do.

4 Q. And during her questions, her premise was that *Baker v.*
5 *Carr* was decided after Tufte's analysis. Do you recall that
6 line of questioning?

7 A. I do remember that.

8 Q. Okay. And I understood her questioning to mean that,
9 therefore, this analysis would not show the effects of *Baker*
10 *versus Carr*. Was that your understanding, too?

11 A. I think so. I think that's where it was from.

12 Q. I will offer you a different premise that happens to be
13 true. *Baker versus Carr* was decided in 1962.

14 Now, looking at your table, do I read this correctly that
15 all but two of the jurisdictions studied by Tufte included data
16 post-dating *Carr*, and those are Great Britain, New Zealand,
17 U.S., all three U.S. jurisdictions, and then the last two
18 jurisdictions on the chart?

19 A. I believe that's correct.

20 Q. And maybe Michigan data did too, we just don't know from
21 this table; is that fair?

22 A. Yeah, that is fair. We don't know what -- what the years
23 are there.

24 MS. McKNIGHT: Thank you. You can take that down.

25 Q. Now, I heard some confusion between questions and answers

1 during your cross-examination, and I want to be sure that your
2 testimony on this point is clear.

3 First, is it your understanding that Dr. Handley's analysis
4 in this case included election data post-dating 2011?

5 A. I believe some of it was.

6 Q. Now, is it your opinion in this case that in 2011,
7 Congressional District 11 should have been drawn at 45 percent
8 or some other percentage below majority minority?

9 A. No.

10 MS. THOMAS-LUNDBORG: Just objection to the
11 characterization of Dr. Handley's data source.

12 JUDGE BLACK: Very well.

13 MS. McKNIGHT: I'll let the record speak for that,
14 Your Honor.

15 Q. Now, I heard plaintiffs' counsel describe a gentleman named
16 Clark Bensen as a fact witness in this case. Do you recall
17 those questions?

18 A. I do.

19 MS. McKNIGHT: Now, the lawyers can quibble over the
20 meaning of a fact witness in a case like this, and, for the
21 record, we object to that characterization.

22 Q. But, for now, I'd like to get a sense from you, who is
23 Clark Bensen?

24 A. Clark is -- Clark Bensen is the -- he owns a data -- an
25 election data company called POLIDATA. And he's been around --

1 I've known Clark for over 20 years, and he is involved in cases
2 like this, but lots of other things too. I mean, he creates --
3 he's one of the people that takes presidential election data
4 and then disaggregates it into congressional districts, which
5 is one of the, you know, data sources that we use, quote a lot.

6 So he kind of plays a role where he creates data and then
7 sells it, but then he also does play a role, oftentimes, in
8 litigation helping experts like me and other people. And
9 sometimes he testifies, sometimes he doesn't, but that --
10 that's Clark.

11 Q. And do you know that Mr. Bensen provides the political data
12 for *Cook Political Report*?

13 A. Yeah, that's right. That was the presidential election by
14 congressional district.

15 Q. What is the *Cook Political Report*?

16 A. That's a report by Charlie Cook, who's a Washington -- you
17 know, he's a political -- a guy in Washington, D.C., that is an
18 expert, basically, about congressional elections. And he puts
19 out this report about this -- about elections. You know, do we
20 expect them to be competitive, where are we likely to see maybe
21 changes, flips between Democrats and Republicans or visa versa.
22 And so that's what Charlie Cook does.

23 Q. And do people rely on the *Cook Political Report* in your
24 field of work?

25 A. Yeah, sometimes.

1 Q. Now, in this case, do I understand correctly that you had
2 one month to prepare your rebuttal report?

3 A. That sounds about right.

4 Q. And am I also correct that your report reviewed four
5 different expert reports prepared by plaintiffs?

6 A. That's right.

7 Q. And did those reports include complex data issues?

8 A. Yes, they did.

9 Q. So in this case, why would you talk with Clark Bensen in
10 preparing your report?

11 A. To get -- because there simply wasn't enough time for me to
12 do all of the data work, and Clark is better at data management
13 than I. He's faster, you know, using data -- database
14 management software systems. All right? I can put together
15 the data, but he's much better at it. So it's very often the
16 case that in -- in a case, it's very often the case that in a
17 case Clark is helping me with the data.

18 Q. One question I forgot to ask you about the *Cook Political*
19 *Report*. Is that considered to be a partisan report or a
20 nonpartisan report?

21 A. Yeah, I think people generally think of it as nonpartisan.

22 Q. Now, Dr. Brunell, the record shows -- and, for the record
23 here, day five transcript, page 272, lines eight through 16,
24 that in 2011 -- the state of Ohio hired Mr. Bensen because the
25 map drawer believed he was, quote, "very reliable and very

1 useful in making the data more workable."

2 Hearing that, did you work with him for similar reasons?

3 A. Yes. That's absolutely the reason.

4 Q. Now, based on your experience, can map drawers draw maps
5 without workable data?

6 A. No.

7 MS. THOMAS-LUNDBORG: Just objection. I don't think
8 they've laid the foundation that he's worked with map drawers
9 on drawing maps.

10 JUDGE BLACK: Very well.

11 Q. Could you have offered your opinion in this case without
12 workable data?

13 A. No.

14 Q. Did Clark prepare any of the substance of your opinion?

15 A. No.

16 MS. McKNIGHT: I'd like to pull up the rebuttal
17 demonstrative again.

18 Q. Dr. Brunell, do you still have a paper copy of the rebuttal
19 demonstrative in front of you?

20 A. You'll have to tell me what the rebuttal demonstrative is.

21 MS. McKNIGHT: Your Honors, pardon me. This is the
22 demonstrative showing the board of elections, Cuyahoga County,
23 Ohio, with shading based on Trump election results.

24 THE WITNESS: I have it.

25 Q. Now, during cross-examination, I heard plaintiffs' counsel

1 ask you questions about BVAP in certain municipalities on this
2 map. Do you recall that?

3 A. Yes, I do.

4 Q. And I also heard her ask you questions about population in
5 certain municipalities within Cuyahoga County. Do you remember
6 that?

7 A. I do.

8 Q. In your -- in your opinion, is it possible to conduct a
9 jurisdiction-specific functional analysis on the fly in a
10 courtroom?

11 A. No.

12 Q. And so when plaintiffs' counsel asked you about BVAP and
13 population in different spots in Cuyahoga County, is that
14 sufficient for a jurisdiction-specific function analysis?

15 A. No.

16 Q. Is it your position that you, Dr. Brunell, have the answer
17 for the appropriate level BVAP in Cuyahoga County?

18 A. Absolutely not.

19 Q. Is it your position that you have the answer for the
20 appropriate level of BVAP in any portion of Cuyahoga County?

21 A. No.

22 Q. Based on your work in this matter, have any of the experts
23 in this matter, on any side -- plaintiffs, defendants,
24 intervenors -- identified the appropriate level of BVAP in
25 Cuyahoga County to ensure that the minority community has an

1 opportunity to elect its candidates of choice?

2 A. Not that I'm aware of.

3 Q. And considering plaintiffs' counsel's questions and
4 considering the political performance of a good portion of
5 Cuyahoga County in favor of candidates who are not preferred
6 candidates, is it your understanding that a district-specific
7 functional analysis needs to be conducted on whatever district
8 is drawn within Cuyahoga County?

9 JUDGE BLACK: Objection?

10 MS. THOMAS-LUNDBORG: Yes. Continuing objection that
11 no foundation was laid that Trump was or was not the preferred
12 the candidate of these voters.

13 MS. McKNIGHT: I'll let the record speak for itself.

14 Q. You can answer.

15 A. You'll have to quickly repeat the question.

16 Q. Sure.

17 MS. McKNIGHT: Pardon me. Would you mind repeating
18 the question?

19 (Question read.)

20 A. I would say so, yes.

21 Q. And I heard plaintiffs' objection. Have you seen any -- is
22 there a type of analysis that can be done to identify a
23 preferred candidate for a minority community?

24 A. Yes.

25 Q. And did Dr. Handley conduct that analysis for the minority

1 community in Cuyahoga County in this case?

2 A. Cuyahoga County only?

3 Q. Yes.

4 A. I don't think so. She did -- again, she did CD11. So she
5 didn't do all of Cuyahoga County. She did part of it. And her
6 analysis also includes parts that are outside Cuyahoga County.

7 Q. Okay. Is it your opinion that all the figures needed to
8 determine whether a district could perform drawn anywhere
9 within Cuyahoga County, that that data is available to be
10 analyzed?

11 A. Sure.

12 Q. And I understand it's also your opinion that it has not
13 been analyzed here; is that right?

14 A. I don't believe that it has.

15 Q. I heard plaintiffs' counsel ask about Mr. Cooper's proposed
16 maps.

17 A. I remember that.

18 Q. Now, based on the premise that I will offer that his maps
19 are drawn within Cuyahoga County, do we have the
20 jurisdictional-specific functional analysis we need to ensure
21 that his district will perform?

22 A. I don't believe that we do.

23 Q. Maybe it's been done, but we haven't seen it; is that
24 right?

25 A. That's correct.

1 MS. THOMAS-LUNDBORG: I'd just like to have a standing
2 objection to what Dr. Handley has done, the characterization of
3 that.

4 JUDGE BLACK: Very well.

5 Q. Did anything in Dr. Cho's analysis consider where within
6 Cuyahoga County her 3 million maps had been drawn?

7 A. I'm sorry. Could you repeat that one again?

8 Q. Absolutely.

9 Did anything in Dr. Cho's analysis consider where within
10 Cuyahoga County her 3 million maps had been drawn?

11 A. I don't -- I don't know. I don't -- the question -- I'm
12 not sure I understand what you mean by the question.

13 Q. Okay. Let me reask it then, so I'm clear.

14 A. Yeah.

15 Q. Based on your review of Dr. Cho's work, were you able to
16 determine where in Cuyahoga County her three million maps were
17 drawn?

18 A. No. No, we don't know. Again, we haven't seen any maps.
19 So it's hard to -- nobody knows.

20 Q. So we don't know which portion of Cuyahoga County her maps
21 capture; isn't that right?

22 A. Absolutely not. That's correct.

23 Q. And my last question, I promise. Has a
24 jurisdiction-specific functional analysis been conducted on any
25 one of Dr. Cho's 3 million maps?

1 A. Not that I'm aware of.

2 MS. McKNIGHT: Thank you, Dr. Brunell. I have no
3 further questions.

4 Thank you, Your Honor.

5 JUDGE BLACK: Sir, you may step down. You are free to
6 go.

7 THE WITNESS: Thank you, sir.

8 JUDGE BLACK: Thank you.

9 (Witness excused.)

10 JUDGE BLACK: So who is the next witness?

11 MR. McKNIGHT: Your Honors, the defendants call Dr.
12 Trey Hood next.

13 JUDGE BLACK: If the Doctor would be willing to
14 approach. We're going to put you in the witness stand over
15 here.

16 If you'd pause. Do you solemnly swear or affirm that the
17 testimony you're going to give today is the truth, subject to
18 the penalty of perjury?

19 THE WITNESS: I do.

20 JUDGE BLACK: Very well. The seat tips back. Get
21 acclimated. We're going to need you near the microphone.

22 Let's go ahead.

23 M.V. HOOD III

24 a witness herein, having been first sworn, testified as follows:

25 DIRECT EXAMINATION

1 BY MR. McKNIGHT:

2 Q. Good afternoon, Dr. Hood.

3 A. Good Afternoon.

4 Q. Could you please state your full name.

5 A. M.V. Hood III.

6 Q. Please describe your educational background for the Court.

7 A. I have three degrees in political science. I have an
8 undergraduate degree from Texas A&M, a master's degree from
9 Baylor and a Ph.D. from Texas Tech University.

10 Q. And what is your present occupation?

11 A. I'm a professor of political science at the University of
12 Georgia.

13 Q. And how long have you been a professor of political science
14 at the University of Georgia?

15 A. I've been at UGA for 20 years now, almost 20 years.

16 Q. And are you a full professor?

17 A. Yes.

18 Q. Are you tenured?

19 A. Yes.

20 Q. How long have you been tenured?

21 A. I believe since 2006.

22 Q. All right. And what are your job duties as a professor of
23 political science?

24 A. Well, I teach courses and I perform research. More
25 recently, I've had some administrative duties I've been

1 performing at the university. About three years ago, three and
2 a half years ago, I was tasked with starting a survey research
3 center from scratch. And I did that, and we've been in
4 operation for about a year and a half. So I've been directing
5 that survey research center for about a year and a half now in
6 full operation. So some of my duties are directed towards --
7 towards that administrative job.

8 Q. And could you give us some examples of entities for whom
9 the research center performs surveys or research?

10 A. We do surveys for quite a few different types of entities.
11 We do academic research surveys. We do surveys for state and
12 local governments sometimes. We do surveys for non-profits and
13 corporations. We don't specifically survey for campaigns,
14 candidates or political parties. We're trying to be sort of a
15 neutral, nonpartisan organization.

16 We do a lot of surveys in conjunction with Cox
17 Communications, which owns the *Atlanta Journal-Constitution*,
18 which is the, I guess, state paper of record, so to speak, in
19 the state of Georgia.

20 So we -- we do all the political polling for the AJC
21 recently.

22 Q. Thank you. And what kind of courses have you taught?

23 A. Well, I've taught a variety of courses over the years.
24 Every spring I teach a class in Southern politics, and we have
25 a heavy dosage in that class of -- of voting rights and

1 redistricting, actually. I've taught courses in American
2 politics, research methods, legislative process. So quite a
3 few different classes over the course.

4 I've also taught a course at the graduate level in election
5 administration a couple of times.

6 Q. What types of research methodology courses have you taught?

7 A. Well, in the past I've taught our, sort of, main
8 undergraduate research methods course that we offer for
9 undergraduate students.

10 Q. And do you have any research specialties?

11 A. Well, I would say, generally, I -- I perform research in
12 the area of American politics and policy. I'm specifically,
13 more specifically, racial politics, Southern politics,
14 electoral politics, election administration, which would also
15 include some emphasis on redistricting under that heading.

16 Q. And have you published articles on redistricting in
17 peer-reviewed journals?

18 A. Yes.

19 Q. How many?

20 A. I believe four directly related to redistricting in one way
21 or another.

22 Q. And how many times has your work appeared in peer-reviewed
23 journals?

24 A. I'm -- I'm not sure. Between 40 and 50 times.

25 Q. Okay. Do you serve on the board of -- I'm sorry. Do you

1 serve on the editorial board of any peer-reviewed journals?

2 A. Currently, two journals: *Social Science Quarterly* and
3 *Election Law Journal*. So -- and *Election Law Journal*
4 specializes, specifically, in issues of election
5 administration.

6 Q. All right. I'd like to ask you now to turn to Exhibit D4
7 in your notebook. And I need to get you a notebook, don't I?

8 A. I think so.

9 Q. So let me do that.

10 MR. McKNIGHT: May I approach, Your Honors?

11 JUDGE BLACK: Yes.

12 THE WITNESS: Thank you.

13 MR. McKNIGHT: I'm not touching you.

14 JUDGE NELSON MOORE: Thank you.

15 (Mr. McKnight distributed binder.)

16 MR. McKNIGHT: All right. I believe everybody has a
17 notebook now, and I think Exhibit D4 is also on our screen.

18 Q. Dr. Hood, do you recognize Exhibit D4?

19 A. Yes.

20 Q. What is it?

21 A. It's an expert report I wrote for this case.

22 Q. All right. I'd like to ask you to turn to the back of your
23 report, past the maps.

24 A. Okay.

25 Q. And what is this document that's reflected on your screen

1 in the back of the report?

2 A. It's a copy of my vitae that's been appended to the report.

3 Q. Okay. And is that copy current through the date that you
4 submitted your report?

5 A. It's dated October 2018, so, yes.

6 Q. Okay.

7 A. Current through that date.

8 Q. Okay. And have there been any significant changes since
9 then?

10 A. Not super significant. I've -- I think I've added a
11 publication since then and maybe a few other things.

12 Q. Okay. Do you recall the name of that publication?

13 A. The first part of it, "Palmetto Postmortem."

14 Q. Okay. Briefly, what's that about?

15 A. That was an article that was examining South Carolina's
16 voter ID statute.

17 Q. All right. And where was that published?

18 A. It's going to be coming out in *Political Research*
19 *Quarterly*.

20 Q. Okay. Now, before this case, have you testified in any
21 other case where your testimony was accepted as an expert
22 witness?

23 A. Yes.

24 Q. How many?

25 A. Well, on page one of the expert report, I've listed a

1 number of cases, more recently, that I've testified in, so --

2 Q. Okay. And that's under the heading "Introduction and
3 Background"; is that right?

4 A. Yes.

5 Q. And you're referring to the third paragraph?

6 A. Yes.

7 MR. McKNIGHT: If we could turn to that on the screen
8 I think that would be -- thank you.

9 Q. And among the cases listed in this paragraph on page one,
10 how many involve redistricting?

11 A. The *Bethune-Hill* case did, *Covington* in North Carolina did,
12 *Vesilind* in Virginia did, and *Common Cause v. Rucho* in North
13 Carolina.

14 JUDGE BLACK: Will you keep your voice up, please.

15 THE WITNESS: Yes, sir. Sorry.

16 Q. Okay. How about *Rios-Andino*?

17 A. There are a couple of Section 2 cases in here. So to the
18 extent to which most Section 2 cases involve some type of
19 districting issue.

20 Yes, the *Rios-Andino* case from Florida.

21 Q. And are there any cases not listed here?

22 A. There's another case more recently *Harding v. Dallas County*
23 *Commissioners Court*, which is also a Section 2 case in Dallas
24 County, Texas.

25 Q. And that's pending in state court in Dallas County?

1 A. Well, I don't think it's pending anymore.

2 Q. Okay. All right.

3 A. I'm unsure. I think there was a decision. I'm unsure of
4 what's going on with the case at this point.

5 Q. Okay. Fair enough.

6 Among the cases in which you have been accepted as an
7 expert, how many have been in the state of Ohio?

8 A. Well, there are at least -- at least two here listed: *Ohio*
9 *Democratic Party v. Husted* and *The Northeast Ohio Coalition v.*
10 *Husted*.

11 Q. All right. Now, those cases didn't involve redistricting;
12 is that right?

13 A. That's correct.

14 Q. Now, have you been retained to testify on behalf of
15 redistricting plans enacted by both Republicans and Democrats?

16 A. Yes.

17 MS. McKNIGHT: At this time, Your Honors, we would
18 move to tender Dr. M.V. Hood III as an expert in American
19 politics and policy, quantitative political analysis and
20 election administration, including redistricting.

21 JUDGE BLACK: And the plaintiff will stand on its
22 *Daubert* memorandum?

23 MS. LEE: Yes, we will, Your Honor.

24 JUDGE BLACK: All right. Conditionally certify.

25 Q. All right. Dr. Hood, turning back to your report that is

1 marked as Exhibit D4, could you please briefly describe what
2 you were asked to do in your report.

3 A. I was asked by the defendants in this case to perform an
4 analysis of Ohio's current congressional redistricting plan.
5 And in doing so, I also responded to various components of some
6 of the plaintiffs' expert witness reports, including Professor
7 Cho and Professor Warshaw and Mr. Cooper.

8 Q. So I want you to turn first to page three of your report.
9 And the title at the top is "The Enacted Plan". What does this
10 section of your report discuss?

11 A. This section of my report looks at the current
12 congressional redistricting plan in Ohio. Sometimes I refer to
13 it as the enacted plan. It examines the plan in light of
14 traditional redistricting criteria.

15 Q. And what were the traditional redistricting criteria that
16 you looked at?

17 A. I looked at a number of things, including population
18 deviation, contiguity, compactness, incumbency protection, core
19 retention, and maintaining communities of interest.

20 Q. Okay. And looking, first, briefly, at Table 1, which is on
21 page three, what does Table 1 show?

22 A. Table 1 shows that the plan achieves the goal of zero
23 population deviation between the 16 congressional districts in
24 Ohio that were implemented in 2012.

25 Q. All right. Then turning to the next page, page four, I

1 want to direct your attention to Table 2. What does Table 2
2 show?

3 A. Table 2 is a comparison between the previous plan --
4 sometimes I refer to it as the benchmark plan that was
5 implemented in 2002 -- compared to the enacted plan, the
6 current plan that was implemented in 2012, on two measures of
7 district compactness: Reock and Polsby-Popper. Which are two
8 of the more commonly used -- I would say two of the most
9 commonly used measures of compactness by map drawers and other
10 experts in these types of cases.

11 Q. And what sorts of factors affect compactness scores of
12 districts?

13 A. Well, I read an article once where I think there are close
14 to 50 different measures of compactness, and so they're all
15 measuring slightly different things. And so, for instance,
16 with Reock, an elongated district, a very long rectangle would
17 be penalized to some degree because you're fitting that
18 rectangle -- you're always fitting the district inside of a
19 circle. And so you're comparing the area of a circle in that
20 case to the area of the district. So certain shapes would be
21 penalized.

22 The Polsby-Popper, you would be penalized on the
23 compactness measure. If you had a very jagged parameter, for
24 instance, like it was following a river boundary, an ocean,
25 those kinds of things, or other kinds of jagged boundaries.

1 So in this case, as the measures go toward -- they go from
2 zero to one, both these measures do. And so as they go towards
3 one, those are increasing levels of compactness. Towards zero,
4 less compact.

5 Q. All right. Now, in your report I believe you write that
6 the 2012 plan is on par with the 2002 plan in terms of
7 compactness. What do you mean by that?

8 A. Well, they're about the same. So if you look -- I've
9 summarized it as looking at the mean statistic down at the
10 bottom here.

11 So, for instance, in 2002, the mean Reock score across
12 those 18 districts was .35. And in 2012, across the 16
13 districts now, the mean Reock score is .35. So those are
14 exactly the same.

15 The Polsby-Popper measures are close. It's -- it decreases
16 slightly in 2012, but -- but not by much: .23 compared to
17 .119.

18 Q. Okay. Now, you've testified earlier that incumbency
19 protection was one of the traditional redistricting criteria on
20 which you evaluated the 2012 plan. I want to direct your
21 attention to Table 3 on page five of your report. What does
22 Table 3 show?

23 A. Table 3 shows the incumbents that were paired going into
24 the 2012 plan. So there are three sets, or six incumbents,
25 that are paired. Two Democrats, two Republicans were paired

1 against each other and then a Republican and a Democrat.

2 Q. All right. And was incumbent-pairing necessary in the 2012
3 plan?

4 A. Well, almost certainly, since Ohio's moving from 18 to 16
5 districts. So some incumbents are probably going to be
6 squeezed, by definition.

7 Q. Okay. Looking at Table 4 on page six, I think this follows
8 along the line of incumbency protection. What does Table 4
9 show?

10 A. Table 4 looks at core retention, which is another measure
11 besides incumbent pairing. It's sort of getting at the idea of
12 incumbency protection. So the way to think about this is what
13 percentage of a member's constituents were carried over from
14 their previous district. So how many -- how many -- what
15 percentage of the member's new district was comprised of their
16 former district?

17 Q. All right.

18 A. So this is based on population, not area, for instance.

19 Q. Okay. And what was your finding in this table?

20 A. Well, that the mean core retention level was 55.7 percent
21 across the 16 districts.

22 Q. And how did you make the calculations that appear in this
23 table?

24 A. Well, I knew which block went into the 2012 plan and I knew
25 which blocks went into the 2002 plan. So I just made a

1 comparison of where the blocks in 2002 were moved to in 2012,
2 following the incumbents across the redistricting cycle or not.

3 Q. All right. And what did you ultimately conclude in your
4 report with respect to incumbency protection and the 2012 plan?

5 A. Well, I -- I concluded that, you know, based on this
6 finding in Table 4, on core retention, and the number of
7 incumbents that were paired, that at least some weight was
8 given in the plan to the -- to the criteria protecting
9 incumbents to the extent possible.

10 Q. All right. Looking next at Table 5 at the bottom of page
11 six, what does Table 5 show?

12 A. Table 5 looks at communities of interest. Here, we're
13 looking at county splits, so the number of counties that are
14 split between congressional districts. So there's -- there's a
15 correction I'd like to make to the 2002 plan number. I now
16 believe that there were 21 counties split in the 2002 plan, not
17 25.

18 Q. Okay. And how were you able to determine that?

19 A. Well, it was the way that the map program was counting some
20 water blocks, for one thing. And then there were some other
21 issues with some blocks that were incorrectly assigned. So
22 going back and looking at things in more detail.

23 Q. And does this change in numbers have any effect on your
24 ultimate analysis or a comparison between county splits in the
25 2002 plan and the 2012 plan?

1 A. Well, there were -- there were 21 counties split in 2002
2 versus 23 in 2012, so we can't say the 2012 plan improved upon
3 that, but, again, that's still what I would call what's on par
4 with the previous benchmark plan.

5 Q. All right. Dr. Hood, I'd like you to turn to page seven of
6 your report now. I'd like to focus on Table 6, which is at the
7 top of that page. Why did you include Table 6 in your report?

8 A. Here, I'm looking at municipalities, and municipalities
9 that are split across congressional districts. And that's
10 another type of community of interest. And to the extent
11 possible, it's not the most overriding criteria. Obviously it
12 isn't. Trump, for instance, population. But trying to keep,
13 you know, other communities of interest like municipalities
14 whole is, again, a traditional redistricting criteria.

15 Q. And what did your analysis find with respect to that
16 criteria?

17 A. Well, it's almost the same. 4.3 percent of these
18 communities were split in the 2002 plan versus 4.5 percent. So
19 across both of these plans, the benchmark and the enacted plan,
20 more than 95 percent of municipalities were kept whole.

21 Q. All right. And were the items that we just discussed all
22 of the traditional redistricting criteria under which you
23 evaluated the 2012 plan?

24 A. Yes.

25 Q. And what were your overall conclusions with respect to

1 traditional redistricting criteria and the 2012 plan?

2 A. Well, overall, my conclusion is that the -- the enacted
3 plan, the 2012 plan, is on par with the 2002 benchmark plan on
4 these criteria.

5 Q. All right. And what next did you look at in your report?

6 A. I looked at -- I did the same type of comparison between
7 the benchmark plan and the plaintiffs' proposed remedial plan.
8 So I performed the same type of analysis that I did -- that we
9 just discussed.

10 Q. Okay. So let's look at Table 7 on page eight. What does
11 Table 7 show?

12 A. Again, this is looking at two measures of compactness,
13 Reock and Polsby-Popper, between the enacted plan -- or, excuse
14 me, between the benchmark plan in 2002 and the plaintiffs'
15 proposed remedial plan.

16 The Reock score, the mean Reock score is slightly higher,
17 .41, as compared to .35. And the Polsby-Popper score is
18 slightly higher for the remedial plan, .35 as compared to .23.

19 Q. All right. Then turning next to Table 8, which is at the
20 bottom of the same page, on page eight. What does Table 8
21 show?

22 A. Again, these are county splits. These are looking at
23 communities of interest. Again, we think -- or I think the
24 2002 plan now had 21 county splits. So with that caveat there,
25 the proposed plan, the proposed remedial plan splits 14

1 counties compared to 21 in the 2002 plan.

2 Q. All right. And then turning to Table 9 on page nine, what
3 did you look at there?

4 A. Again, these are municipalities that are split between the
5 two plans. 4.3 percent of municipalities are split in the
6 benchmark plan compared to 1.7 percent in the proposed remedial
7 plan.

8 Q. All right. And looking down that page, what is the next of
9 the traditional redistricting criteria that you evaluated the
10 proposed remedial plan on?

11 A. So, again, these are the incumbent pairings that would have
12 occurred under the plan's proposed remedial plan. So there are
13 six incumbents that are paired under the proposed remedial
14 plan.

15 Q. Okay. And that pairing included the Speaker of the House;
16 is that right?

17 A. Yes, John Boehner's paired there.

18 Q. Okay.

19 A. He was Speaker of the House at that time, yes.

20 Q. Now, looking at Table 10, what was the partisan breakdown
21 of the incumbency pairs under the original proposed remedial
22 plan?

23 A. Well, it looks like there are four sets of Republican
24 incumbents that are paired, one set of Democratic incumbents
25 and another set that's one Democrat and one Republican.

1 Q. All right. And are you aware that Mr. Cooper created a
2 corrected proposed remedial plan after you pointed out these
3 incumbent pairing issues in your report?

4 A. Yes.

5 Q. Okay. Do you know what effect any changes Mr. Cooper made
6 to his corrected proposed remedial plan had on the incumbent
7 pairing listed in your chart?

8 A. It's my understanding that it reduced it by one, so that
9 the Boehner-Jordan pairing was undone. And I believe the other
10 pairings were still in place.

11 Q. All right. And let's look at Table 11, then, on page ten.
12 What does Table 11 show?

13 A. So, again, these are the core retention calculations. So
14 this is -- under the plaintiffs' remedial plan, how much of a
15 member's former district that's in the enacted plan were
16 carried over to the new district that they were located in. So
17 that the mean figure here is 39.5 percent.

18 Q. Okay. And you calculated that figure the same way in which
19 you calculated Table 4 for the 2012 plan; is that right?

20 A. Yes.

21 Q. Okay. Now, practically speaking, what does a mean 39.5
22 percent core retention result in?

23 A. Well, that's an average figure. So it would say less than
24 half. In this case, just under 40 percent of an incumbent
25 member's constituents were with them in the old district that

1 they were in. So they were carried across the redistricting
2 cycle to the new district with the incumbent. Again, that's on
3 average.

4 Q. All right. The next heading in your report is entitled
5 "Ohio's Political Geography," and that begins on page ten.
6 What is the purpose of this section?

7 A. Well, there are a couple of purposes. I'm trying to get an
8 idea here -- present a set of maps that demonstrate the spatial
9 distribution of partisans in Ohio. That's one thing.

10 And I'm doing a couple of tests here to see if there's what
11 we call spatial clustering or not. And so this gets to the
12 idea that's been suggested of natural packing and whether or
13 not natural packing may be an issue that affects redistricting
14 in Ohio.

15 Q. And how did you go about conducting your analysis for this
16 section of your report?

17 A. Well, I used VTD-level data, and I created a vote index.
18 So I'm looking at partisanship through the lens of a vote
19 index.

20 Q. All right. And so let's turn to Table 12 on page 12. What
21 is shown in Table 12?

22 A. So these are the statewide contested races that I used to
23 create the vote index that's presented for this part of the
24 analysis.

25 Q. All right.

1 A. You see, there's four election cycles -- and, again, these
2 are all temporally prior to the 2012 redistricting plan. And
3 there are 15 elections here, I think, being used.

4 Q. All right. And how did you calculate your partisan vote
5 index?

6 A. So this is just the two-party share of the vote. So third
7 party and other votes were eliminated. So we're just looking
8 at the Republican and Democratic vote as the total of the
9 two-party vote share. Actually, it's, technically, calculated
10 here as the Republican vote as a proportion of the two-party
11 vote share. So it goes from zero to a hundred percent. Zero
12 would be zero percent Republican and a hundred percent would be
13 a hundred percent Republican.

14 And so for the maps -- again, it's a continuous variable.
15 But for the maps I divided things up into quartiles. So zero
16 to 24.9 percent would be strong Democratic. 25 percent to 49.9
17 percent would be Democratic. 50 percent to 74.9 percent would
18 be Republican, and 75 to 100 percent would be strong
19 Republican.

20 And I used sort of the traditional color coding that we see
21 a lot of times now with dark blue, light blue, light red and
22 dark red to denote those -- those different categories on the
23 maps.

24 Q. All right. And we'll take a look at the maps in a moment.
25 But, first, how did you decide which elections to include in

1 your partisan vote index?

2 A. Well, again, I want -- these are all statewide contested
3 elections. So that was one criteria. I needed to pick -- or I
4 wanted to pick elections that were happening temporally prior
5 to the redistricting plan that was put in place. And it was my
6 judgment that using four election cycles, which included 15
7 contested elections, was certainly enough data to sort of get a
8 fix on things, so to speak.

9 MR. McKNIGHT: All right. And speaking of the maps,
10 could we pull up Figure 1, which is located in the back of the
11 report. And if you're in the notebook, it will be at the end
12 of the report.

13 Q. All right. Dr. Hood, I think we already reviewed the
14 legend at the bottom of Figure 1; correct?

15 A. Yes. That's what I was going over orally just a second
16 ago.

17 Q. All right. And could you just briefly describe for us what
18 this map shows.

19 A. Well, obviously, this is the state of Ohio. These are VTDs
20 which are shaded based on their partisan characteristic, as I
21 just described it.

22 Q. Okay. And what did you find in doing this map?

23 A. Well, one can see with the eye -- it's more difficult to
24 see the urban areas, and I provided some -- some enlarged shots
25 of the major urban areas. But, just in general, again, there's

1 a much larger Republican footprint outside of urban areas.

2 Much of the Democratic footprint during this time is inside

3 urban areas, like Cleveland and Columbus, Cincinnati. There's

4 some Democratic shaded VTDs, the lighter shading running up the

5 Ohio River Valley there as well. So --

6 Q. All right. And how much larger of a geographic footprint
7 do Republicans have in Ohio as compared to Democrats?

8 A. Well, I calculated it on page 12 of my report. And, again,
9 this is land area. This is not population at this point, based
10 on these figures that about 78.5 percent of Ohio's land area,
11 in square miles, is comprised of Republican-leaning VTDs.

12 Q. As compared to how much for the Democrats?

13 A. About 21.5 percent.

14 Q. All right. And so I think you indicated that you had some
15 enlarged versions of some areas of the map. Let's -- let's
16 first turn to Figure 2, which is right behind Figure 1 in your
17 notebook. What does Figure 2 show?

18 A. So Figure 2 is exactly the same as Figure 1, except it has
19 the current congressional district boundaries superimposed on
20 the map for reference.

21 Q. All right. And then let's turn, then, to Figure 3.

22 A. Okay. So this is an enlargement. Again, it's the same
23 map, it's just an enlargement of the Columbus area.

24 Q. All right. And let's look, then, at Figure 4.

25 A. Okay. Figure 4 is, again, the same map, just an

1 enlargement of the Cincinnati-Dayton area.

2 Q. And finally, Figure 5?

3 A. Okay. Figure 5 is an enlargement of the Cleveland area.

4 Q. Now, did you perform any kind of analysis or testing
5 related to the partisan distribution of Ohio voters?

6 A. Yes. I did some further subsequent statistical testing. I
7 ran a statistic called Moran's I to determine if there was --
8 if the presence of spatial autocorrelation was there -- or
9 spatial clustering, geographic clustering. So the idea is do
10 VTDs in this case with similar levels of partisanship tend to
11 geographically cluster next to one another.

12 Q. All right. So let's look at page 13 of your report, and
13 Table 13, specifically.

14 A. So this is where I report Moran's I. And, again, the top
15 part of the table has Moran's I from the data we just looked
16 at, from 2004 to 2010. So it's statistically significant and
17 nearing one. It's not at one, obviously. One is the maximum
18 level. It's .699. So there is spatial autocorrelation or
19 clustering present in the partisan distribution of Ohio, and
20 it's statistically significant, and it's a fairly strong
21 relationship.

22 So in -- in plain English, the Republican VTDs tend to be
23 located proximate to other Republican VTDs, and Democratic VTDs
24 tend to be located proximate to other Democratic VTDs in the
25 state.

1 Q. All right. And along those same lines, let's look at Table
2 14 on page 14 of your report.

3 A. Okay. This was a second test I conducted based on looking
4 at VTDs using population density, so the population of the VTD
5 over square miles. And I'm looking at what the relationship
6 between population density of VTDs is and partisanship.

7 Now, in this case, I've reversed things. So nearing 100
8 would be a hundred percent Democratic now. So higher levels
9 are -- are more Democratic. So I've just -- I've just
10 reverse-coded the dependent variable here.

11 But what this -- what this table shows us is that as
12 population density increases -- and that's my proxy for urban
13 areas -- as population density increases, Democratic
14 partisanship and the VTD level also increases.

15 Q. All right. And, practically speaking, what does that mean?

16 A. Well, in plain English, again, Democratic VTDs are more
17 likely to be located in urban areas compared to Republican
18 VTDs.

19 Q. Looking, then, at page 14, you begin a new section of your
20 report entitled "The 2012 Plan and Partisanship." So I want to
21 turn then to Table 15 on page 15. What does Table 15 show?

22 A. Okay. This is, again, using the partisan index we
23 discussed that I calculated based on those elections in Table
24 12. I had these data at the block level, so I reconstituted
25 the partisan index from the block level up into the current

1 congressional districts, and then made some classifications
2 based on where the partisan index stood for each district. So
3 for instance -- and, again, sort of color coded them.
4 Competitive districts are white here, safe Democratic districts
5 are blue and safe Republican districts are red.

6 So, again, going back and using a standard definition from
7 political science, usually competitive districts are plus or
8 minus five percent from -- from 50 percent. So anything 55
9 percent or greater in this case would be classified as a safe
10 Republican district. Anything less than 45 percent would be
11 classified as a safe Democratic district. Anything between 45
12 and 50 percent is competitive but Democratic leaning. And
13 anything between 50 and 55 percent is competitive but
14 Republican leaning.

15 Q. Now, I believe you said that your definition of
16 competitiveness comes from the world of political science; is
17 that right?

18 A. Yes. It's a commonly accepted definition.

19 Q. Okay. And do other political scientists sometimes use
20 other definitions of competitiveness?

21 A. Well, this is a more conservative measure, if you will.
22 Some people have used plus or minus ten percent to define
23 what's competitive and what's safe.

24 Q. Now, when you say a seat is safe for one party or another,
25 does that guarantee that any person who wins that party's

1 nomination can win the seat?

2 A. No. Again, it's just based on the partisan index here and
3 the use of the partisan index and trying to classify it in that
4 regard. Of course, we do, as we'll talk a little bit later,
5 actually have elections at some point. So that's another
6 factor that's involved outside of redistricting.

7 Q. Okay. And why do you use statewide data in your partisan
8 indices as opposed to data from other races like congressional
9 races?

10 A. Well, there are a couple of reasons. And one reason is
11 there are no missing data. So there's a statewide contest,
12 it's everyone in the state's able to vote for those contests.
13 So that's one reason.

14 Second, if you use something like congressional elections,
15 you know, congressional elections can be impacted by national
16 forces. That's true. But, also, each congressional election
17 can be at some microcosm as well, even with inside the state.
18 And so I just think statewide races are a better gauge. And,
19 again, not just one race, because you want to use multiple
20 races -- that's when you're creating an index -- to sort of
21 smooth out any election-specific events that may be there with
22 even a given election cycle or a given -- an election within an
23 election cycle. So those are some of the reasons I rely on
24 using statewide races and placing them in an index to try to --
25 to try to use it as a proxy for partisanship.

1 Q. All right. And looking then at Table 16, which is also on
2 page 16, this table looks similar to the last one we looked at.
3 What does this table show?

4 A. So this is the plaintiffs remedial plan, again, where I've,
5 again, sort of reconstituted things using my partisan vote
6 index to categorize the districts in the remedial plan.

7 Q. All right. And we talked earlier about the fact that Mr.
8 Cooper created a proposed -- a corrected proposed remedial plan
9 after you submitted your report in this matter. Do you
10 remember that?

11 A. Yes.

12 Q. And I will represent to you that it's in the record that
13 Mr. Cooper testified that he only made changes between the
14 proposed remedial plan and the corrected proposed remedial plan
15 in Districts 4 and 8. If you knew that, do you think that any
16 of the changes that Mr. Cooper made and incorporated into his
17 corrected proposed remedial plan would affect your analysis
18 here?

19 A. It shouldn't, because both 4 and 8 are classified here,
20 even in the first remedial plan, as safely Republican. So if
21 you're just sort of moving territory between those two
22 districts, you're probably not changing the partisan
23 classification, according to this vote index.

24 Q. Okay. And what were the differences that you noticed
25 between the proposed remedial plan and the enacted plan?

1 A. Well, there's one -- comparing the enacted plan to the
2 proposed remedial plan, it looks like there's once less safe
3 Republican district and one additional competitive district
4 leaning Democratic --

5 Q. Okay.

6 A. -- compared to the enacted plan.

7 Q. All right. Now, on page 16, below this chart, you have,
8 again, a new section of your report entitled "Election
9 Analysis," and I think you were alluding to this earlier.

10 Based upon your academic work, other than the partisan makeup
11 of a district, what types of factors have you found influence
12 the outcome of congressional races?

13 A. Well, again, the fact that we need to, for one, factor in
14 the fact that we have elections. And so candidates and
15 campaigns and everything involved with the electoral process
16 can also matter, obviously, in who's getting elected in a
17 particular district.

18 Q. Okay.

19 A. Fundraising, media attention, name recognition, incumbency,
20 many different factors that are related to election-specific
21 effects.

22 Q. Now, you just mentioned incumbency. Do incumbents enjoy an
23 advantage in congressional races?

24 A. Yes. So this is another part of the, sort of, political
25 science literature. The incumbent reelection rate post-World

1 War II in the U.S. House of Representatives -- again, this is a
2 nationwide figure -- is 90-plus percent. So most of the time
3 incumbents are being returned to office. And that's sort of a
4 well-recognized and documented fact in political science.

5 Q. All right. And let's turn now to Table 17 on page 18 of
6 your report. And we'll take a closer look at that. But before
7 we do, was it your observation that congressional incumbents
8 had an advantage in the election cycles in Ohio after the 2012
9 plan was in place?

10 A. Well, the incumbent that ran, except for the ones that were
11 paired, in that case some incumbent's going to lose, but, of
12 course, another incumbent's going to win. But from my memory,
13 I believe all of the incumbents that ran in 2012 were returned
14 to office.

15 Q. Okay.

16 A. Unless there was a pairing again. Sorry.

17 Q. And other than where incumbents were paired, what was the
18 success rate of incumbents under the 2012 plan, from the 2012
19 election through the 2018 election, if you recall?

20 A. I think it's a hundred percent.

21 Q. And looking at Table 17, what is Table 17 designed to show?

22 A. This just shows where the presence of incumbents were in
23 2012, 2014 and 2016, in those election cycles.

24 Q. Okay. And if I'm reading this correctly, there were no
25 open seats in the 2014 and 2016 election cycles; is that

1 correct?

2 A. Correct.

3 Q. And three open seats in the 2012 cycle?

4 A. Correct.

5 Q. Okay. Now, were Democrats able to prevail in any of the
6 seats in the 2012 cycle that were open?

7 A. Not to my memory, no.

8 Q. Okay. Now turning, then, to Table 18 on page 19. Why did
9 you include Table 18 in your report?

10 A. Well, this is another factor related to why incumbents
11 typically win election. And so this is looking at what's
12 called challenger quality. And challenger quality in this
13 case, and in many other cases in political science, is
14 preliminarily being measured by the presence of a challenger
15 that's held prior elective office. So they have some prior
16 officeholding experience at any level, state, local,
17 congressional, state legislative, et cetera.

18 Q. All right. And how did you go about making the
19 determinations about who had prior officeholding experience
20 that are included in this chart?

21 A. A lot of -- a lot of Internet searching, looking at
22 newspapers and other election Web sites, and to the extent to
23 which they were still available, archives, campaign Web sites
24 that were put out by these candidates.

25 Q. And what was your overall conclusion based upon your review

1 of the prior officeholding experience of individuals who
2 challenged incumbents in Ohio from 2012 through 2016?

3 A. Typically, more often than not, the challengers were what
4 we would call political novices. They did not have prior
5 officeholding experience. And, again, the cases where someone
6 did are listed in Table 18 here for these three election
7 cycles. So you can see a lot of no's on the table, which would
8 indicate no prior officeholding experience.

9 And, again, it's not -- it's certainly not easy to unseat
10 an incumbent. Even someone with prior officeholding experience
11 probably is not going to unseat an incumbent, but it's a factor
12 that would increase the probability that that might happen.

13 Q. Okay. And if there are dashes in the chart, for example,
14 as there are under the 2012 cycle, what does that indicate?

15 A. I think those are open seats from the previous chart, Table
16 17. Those were looked to be open seats.

17 Q. Okay. And then, of course, District 16 where there were
18 two incumbents paired?

19 A. Correct. There was a --

20 Q. Okay. Looking, then, at Table 19, which is on page 20.
21 What does Table 19 show?

22 A. This is looking at the amount of campaign contributions
23 that were collected by the Republican and the Democrat in each
24 one of these elections. And, of course, there's an indicator
25 for who is in the incumbent party position there. So this is

1 the two-year reporting cycle with the FEC for direct
2 contributions.

3 Again, this is another factor related to winning elections,
4 obviously, and to potentially being able to unseat an
5 incumbent. The challengers typically need to really outraise
6 incumbents in order to have a shot at things. It still doesn't
7 mean that they're going to win, but it's going to increase the
8 probability that, for one, they can get their message out, for
9 instance.

10 Q. All right. And in looking at the bottom of your chart
11 here, what was your ultimate conclusion after charting these
12 numbers?

13 A. Well, there's an average figure down here at the bottom
14 which says, basically, that incumbents outraise challengers by
15 about \$1.2 million, on average.

16 Q. All right. Now, you didn't include any races in this chart
17 where there were open seats where the race was uncontested; is
18 that right?

19 A. Right.

20 Q. All right. Why did you look at money raised versus money
21 spent in this chart?

22 A. Well, you could have looked at money spent. They're very
23 close proxies. But this gives you, I think, a better idea or a
24 more inclusive idea of the amount of money or resources that
25 were available whether it was all spent or not.

1 Q. All right. Turning, then, to Table 20 on page 21. What is
2 20 designed to show?

3 A. So 19 was the 2012 election cycle. This is campaign
4 contributions totaled up for the 2014 election cycle. And,
5 again, what we see at the bottom here is just sort of a sort of
6 handy tabulation. What that says is that the -- on average,
7 the incumbent outraised the challenger by about \$1.3 million.

8 Q. All right. Now, I do see sort of an anomaly in here where
9 there's a -- there's a difference between what the incumbent
10 raised and what the challenger raised of \$17 million in
11 Congressional District 8. Do you see that?

12 A. Right. So that was Speaker Boehner. And I did not
13 include -- I thought that would be unfair to include in this
14 average figure, because it would have pulled the measure way
15 over to one side. So I didn't include that \$17 million in this
16 average.

17 Q. And you've included that, a notation on that, in Footnote
18 28; is that right?

19 A. Yes.

20 Q. Okay. All right. Let's next look at Table 21, which is
21 on -- at the top of page 22. What does Table 21 show?

22 A. This is the same table, except now we're looking at the
23 2016 election cycle, and then the difference between funds
24 raised by challengers and funds raised by incumbents. And,
25 again, on average the incumbents outraised the challengers by

1 about 1.5, if you round off, \$1.45 million on average.

2 Q. All right. And I see this -- this may be an obvious
3 question, but I see on both this chart and the last chart there
4 are some zeros there. What do those represent?

5 A. That would simply mean there were no campaign contributions
6 reported for that candidate.

7 Q. Okay.

8 JUDGE WATSON: Or there was no candidate.

9 THE WITNESS: There was a candidate, Your Honor.
10 They -- they just didn't report any campaign contributions.

11 Q. Because in races where there was no candidate, you would
12 have entered dashes; correct?

13 A. Correct. So in this election cycle, from my memory, all
14 the incumbents were being challenged by someone.

15 Q. All right. And looking back then at Table 19. You handled
16 instances in which there was no candidate, consistently, across
17 your charts, didn't you, as you did in Table 19?

18 A. Okay.

19 Q. Okay. With the dashes.

20 The next section of your report I wanted to focus on really
21 begins with Figure 6, and that is on page 25 of your report.

22 All right. What does Figure 6 in your report show?

23 A. So here I'm looking at the efficiency gap measure for Ohio
24 from 1992 to 2016, plotted against the seat share of the
25 congressional delegation. So that's along the horizontal axis

1 there.

2 And what we see are these points line up, not perfectly,
3 but close to a straight line. So I fit that straight line
4 using an equation, an OLS regression equation, which is located
5 up in Table 23.

6 So what this is saying, in plainer English, is that
7 value -- we can see it in the plot here -- that values for the
8 efficiency gap are closer to zero as the seat share is more
9 evenly balanced. And as the seat share tilts one way or the
10 other, the efficiency gap measure grows.

11 And so what the equation here says is that -- in this case,
12 I'm using percentage GOP seat share. You could reverse it and
13 be Democratic seat share and it would be the same. It would
14 just be negative. But I'm using percentage GOP seat share, and
15 it shows that it's positively and statistically related to the
16 efficiency gap measure, the value for the efficiency gap. In
17 fact, this equation also tells us -- this very simple equation
18 tells us that 50 percent of the variance in the efficiency gap
19 is being explained by the seat share variable.

20 Q. All right. And based upon this, are there any analytical
21 issues with the use of the efficiency gap measure?

22 A. Well, again, you're going to get an efficiency gap measure
23 that's more within what's been termed "acceptable ranges" as
24 the seat share within a state is more evenly balanced. So it's
25 just something to keep in mind.

1 Q. All right. Looking at page 26 of your report, you begin a
2 discussion of the shifting partisanship in Ohio. Could you
3 give us an overview of your findings in that regard.

4 A. Sure. I wanted to look at what had happened in Ohio on
5 partisan terms post this redistricting cycle, so from 2012
6 forward.

7 So initially I'm looking at some elections from 2012, 2014,
8 and 2016. And, again, I draw another VTD level map.

9 Q. And, Dr. Hood, I'll stop you there.

10 A. Okay.

11 MR. McKNIGHT: And ask that we put up Figure 7.

12 Q. And Figure 7, if you're in the notebook, is located behind
13 Figure 5 in the map section.

14 Dr. Hood, you just mentioned drawing another VTD-level map.
15 Could you, again, describe for us how you did that here and
16 what this map shows.

17 A. The same way. I created a partisan index using, you know,
18 2012, 2014 and 2016 elections in this case. And so you can
19 compare Figure 7, if you'd like, to Figure 1, just for
20 reference. It's the same VTD-level map. And you can see the
21 areas that were present in the -- in the previous map of
22 lightly shaded blue, especially in the Ohio River Valley, have
23 greatly diminished. You still see areas of Democratic strength
24 in the urban areas. The stronger Republican VTDs or the higher
25 level Republican VTDs have also increased in the western part

1 of the state, moving into the central part of the state.

2 Q. All right. And along those lines, I believe you created
3 another figure showing this information from a county-level
4 perspective; is that right?

5 A. Right. So I can get all the elections I wanted to using
6 county-level data, and county-level data is very easy to access
7 and utilize. So I looked at, again, all of these -- all -- all
8 available statewide contested races comparing the index from
9 2004 to 2010 and then the index from 2012 to 2016.

10 Q. And, Dr. Hood, let me stop you, again, right there, and we
11 can put up Figure 8 so that everyone can follow along with what
12 you're talking about.

13 A. Okay.

14 Q. So before we go further, what does Figure 8 show?

15 A. Figure 8 shows where there have been increases, just,
16 literally, a numeric increase in the percentage Republican in
17 these counties across those two time periods. So -- and,
18 again, I've created a set of categories, zero to plus 4.9, five
19 to 9.9 and ten to 16 percent, which was the highest value.

20 So these are just the differences or shifts that you see
21 from the, sort of, pre-districting vote index to the
22 post-redistricting vote index across those two time periods.

23 Q. Okay. And you were starting on this earlier. Could you,
24 again, explain the difference between the data you used to
25 create Figure 7, which is the VTD-level map, and this Figure 8,

1 which is the county-level map, based upon the data available to
2 you.

3 A. Right. So in Footnote 39 on page 27, I detail the
4 elections I -- I had available at the VTD level to utilize for
5 the post-redistricting VTD-level vote index. Again, using
6 counties, I was able to add to that and include even more
7 statewide races.

8 Q. Okay. And --

9 A. And that is in Footnote 40, I believe.

10 Q. Okay. And I believe at the bottom of page 27 you provide a
11 numerical breakdown of the various increases of -- in the
12 Republican partisanship across Ohio's 88 counties. Could you
13 review that for us.

14 A. Okay. Well, I'll just read this out lot. "Eleven counties
15 (12.5%) were in the 0 to +4.9 percent range; fifty counties
16 (56.8%) were in the +5.0 to 9.9 range; and twenty-seven (30.7%)
17 were in the +10 to 16.4 range."

18 Q. And so is it accurate to say that all 88 counties saw an
19 increase in Republican partisan strength during this time
20 period?

21 A. Based on this -- on this analysis, yes.

22 Q. Now, the last section of your report is entitled
23 "Plaintiffs and Standing"; is that correct?

24 A. Yes.

25 Q. Now, you were not asked to opine on whether any of the

1 plaintiffs in this case had legal standing, were you?

2 A. Correct.

3 Q. All right. Now, what was the purpose of this particular
4 section?

5 A. Well, the purpose of this section was to look at the
6 individual plaintiffs in the case and see if their situation,
7 in partisan terms, would be better or worse off moving from the
8 current enacted map to the remedial map. Again, we're making
9 use of the partisan index that we've talked about previously.
10 And this information is -- is summarized in Table 24.

11 Q. All right. So let's look at Table 24, which appears at the
12 top of page 30. What is illustrated in Table 24?

13 A. Okay. So this is the plaintiffs in the case in their
14 current district, and then the categorization of the district
15 based on the vote index we discussed, and then their new
16 district in the remedial plan, and the partisan categorization
17 of that district using the same vote index we discussed. And
18 the last column just shows the difference in partisan makeup
19 between the two districts. So did their situation improve,
20 stay the same, or possibly get worse?

21 Q. And what did you conclude in that regard?

22 A. Well, of the -- of the -- I think there are 17 plaintiffs
23 here. My conclusion is that of the 17 candidates, really, only
24 two -- only two of these plaintiffs -- excuse me. Not
25 "candidates," plaintiffs. Only two of these plaintiffs would

1 have their situation improved in terms of being able to have a
2 better chance at electing a Democratic member of Congress.

3 Q. And which two plaintiffs are those?

4 A. Griffiths in CD7 and Hutton in CD14.

5 Q. All right. And, now, assuming that Mr. Cooper's corrected
6 proposed remedial plan only made changes in districts four and
7 eight, do you think anything about the corrected proposed
8 remedial plan would change the analysis that you presented
9 here?

10 A. No. Again, for the same reason that I stated earlier, if
11 you're -- if these are both, you know, classified as safe
12 Republican seats, and if you're just switching some territory
13 between those two, it's probably not going to have an effect on
14 the way we classify the district overall.

15 MR. McKNIGHT: All right. And, Your Honors, I see
16 we're nearing 3:00 o'clock. I'm about to move to the
17 supplemental report at this point. This would probably be an
18 okay time for a break, unless you'd like me to continue.

19 JUDGE BLACK: Very well. We will break until 3:20.

20 During the break, the witness is not to discuss his
21 testimony with anyone. He understands that; correct?

22 THE WITNESS: Yes. Yes, sir.

23 JUDGE BLACK: Very well. Enjoy the break. 3:20.

24 COURTROOM DEPUTY: All right. This court is in recess
25 until 3:20.

1 (Witness temporarily excused.)

2 (Recess taken: 2:59 PM - 3:21 PM.)

3 JUDGE BLACK: Thank you. You may be seated.

4 The witness may re-take the stand.

5 (M. V. Hood III resumes the witness stand.)

6 JUDGE BLACK: Before we proceed to the continuation of
7 direct, the Court has conferred, and the Court grants the
8 plaintiffs' oral motion to present the testimony of
9 Congresswoman Kaptur by videoconference for the same reasons
10 articulated in the decision as to Congresswoman Fudge. So
11 you'll get on with that, and I'm not sure when to schedule it
12 yet. I'm going to talk to you at the end of the day as to
13 where we are and where we think we are and where we think we're
14 going. So I wanted that decision conveyed so you could get to
15 work on it, if that's appropriate.

16 MS. LEVENSON: Thank you very much, Your Honor.

17 JUDGE BLACK: Very well.

18 MS. LEVENSON: Can I put our technical people in touch
19 with the Court's technical people?

20 JUDGE BLACK: Yes.

21 MS. LEVENSON: Okay. Thank you so much.

22 JUDGE BLACK: Thank you.

23 Yes, sir?

24 MR. STRACH: Your Honor, we respect the ruling of the
25 Court. We just want to note our exception to it for the

1 record.

2 JUDGE BLACK: Absolutely.

3 MR. LEWIS: Your Honor, we'd also like to know what
4 courthouse or location Representative Kaptur intends to testify
5 from.

6 JUDGE BLACK: Do you know that yet?

7 MS. LEVENSON: She's in Washington, D.C. So it would
8 have to be from the federal courthouse there, unless it's
9 possible for her to testify from the Rayburn Building that has
10 a recording studio. I don't know if that's technically
11 feasible or not.

12 JUDGE BLACK: I think they'll get back to you as soon
13 as they can. It sounds like she's in D.C. Is that responsive
14 to your inquiry at this point?

15 MR. LEWIS: It is, Your Honor. We'll do our very
16 best.

17 We had an issue with Representative Fudge with
18 cross-examination exhibits. She was unable to see many of
19 them. And it was only by sheer luck we were able to have
20 somebody run over to the courthouse to be able to have paper
21 copies. I don't know that we're going to be able to do that
22 while we're in the midst of a trial, but we'll do our best.

23 JUDGE BLACK: Very well.

24 Are you ready to continue direct?

25 MR. McKNIGHT: I am, Your Honor.

1 JUDGE BLACK: Do you have an approximation?

2 MR. McKNIGHT: I hope 15 to 20 minutes, maybe better.

3 JUDGE BLACK: I've started the clock.

4 MR. McKNIGHT: Okay. See how I do.

5 Q. All right. Dr. Hood, would you please turn with me to
6 Exhibit D5. And it's also up on the screen.

7 Dr. Hood, do you recognize Exhibit D5?

8 A. Yes.

9 Q. And what is it?

10 A. It's a supplemental report I produced for this case.

11 Q. All right. And if you will, please, sir, turn with me to
12 Table 1. And that is found on page three.

13 What does Table 1 on page three show?

14 A. This is just a table. The purpose of this supplemental
15 report was to update my original report to include what
16 happened in the 28 election -- 2018 election cycle. So this is
17 just a rendering of the results of the statewide contest in
18 Ohio in 2018, found in Table 1.

19 Q. All right. Turn with me, then, to Table 2. And that's on
20 page four. What does Table 2 show?

21 A. Okay. Table 2 or this section of the report updates the
22 same factors that I looked at previously: Incumbency, campaign
23 contributions and challenger equality for the 2018 selection
24 cycle. So Table 2 is just recording where there was an
25 incumbent or not in the 2018 election cycle.

1 Q. And what does Table 2 say about the incumbent reelection
2 rate in Ohio during the 2018 cycle?

3 A. One seat was open, and that was 16, but for the other 15,
4 the incumbent was reelected.

5 Q. And how does that pattern square with the pattern that you
6 saw during the 2012 to 2016 time frame?

7 A. Well, that continues the pattern that we saw previously
8 where the incumbent is being elected, again, at a hundred
9 percent rate.

10 Q. All right. And I apologize, but for Table 1, I don't
11 believe I asked you how you calculated the percentages in that
12 table. If we could turn back there for just a moment.

13 How were the percentages in Table 1 calculated?

14 A. So this is just out of the two-party -- major two-party
15 vote share. So, for instance, the D vote is the democratic
16 vote out of the two-party vote share, and the Republican vote
17 is the Republican vote out of the two-party vote share.

18 Q. All right. Turning then to Table 3, which is on page five.
19 What does Table 3 on page five show?

20 A. Table 3, again, looks at challenger quality, which
21 challengers in these incumbent races had prior officeholding
22 experience. And of the 15 incumbents challenged, it looks like
23 three faced a challenger with some type of prior officeholding
24 or elective experience.

25 Q. All right. And then turning to Table 4, what does Table 4

1 show?

2 A. Table 4, again, is a rendering of campaign contributions
3 for the 2018 election cycle. It makes the same comparisons as
4 we did previously.

5 Q. Okay. And what did you conclude after you constructed
6 Table 4, with respect to the fundraising efforts of incumbents
7 and the challengers in Ohio?

8 A. Well, in this particular election cycle, 12 of the 15
9 incumbents outraised the challenger. There were three cases
10 where the challenger actually outraised the incumbent. Those
11 were in CD1, 7 and 12. But for the 15 incumbent races where
12 the incumbent outraised the challenger, it was by an average of
13 about \$1.03 million, which is on the previous page.

14 Q. Okay. And how about with respect to the open seat? I
15 believe that you did include fundraising totals for the open
16 seat in Congressional District 16. How -- by how much did the
17 Republican outraise the Democrat in that race?

18 A. It looks like about \$1.555 million or \$1.6 million, if you
19 round it off.

20 Q. And do you know who prevailed in that particular contest?

21 A. I --

22 Q. Let me ask it, do you know whether the Republican or the
23 Democrat prevailed?

24 A. The Republican prevailed. I can't remember his name.

25 Q. Yeah. I didn't intend to ask you his name. Turning, then,

1 to Table 5 on page seven. What does Table 5 show?

2 A. So, here, I'm able to update the partisan indices I was
3 using for the county comparisons to include 2018. So now
4 the -- now we have four election cycles prior to the
5 redistricting, 2004, '6, '8 and '10, and four
6 post-redistricting, which are '12, '14, '16 and '18. And,
7 again, using these same contested statewide races that we
8 talked about earlier, I was just able to add the 2018 numbers
9 back in. Not back in. At this point I was able to add them in
10 because the election had occurred.

11 Q. All right. So there's also a map that is attached to your
12 supplemental report that is identified as Figure 1.

13 MR. McKNIGHT: Could we turn to that now.

14 Q. All right. Dr. Hood, could you explain how you constructed
15 Figure 1 and what it shows.

16 A. So this is the same thing that I was discussing earlier.
17 Again, I've just been able to add the 2018 data on to this and
18 created a number of categories to show the either increase or
19 decrease in Republican vote strength using these indices across
20 these two time periods. So this is just literally the
21 difference between time period one, pre-districting, and time
22 period two, post-redistricting.

23 So, again, there's some changes from the previous map that
24 only included up to 2016, but there's still -- still counties
25 picking up Republican strength, especially in the Ohio River

1 Valley, on the eastern part of the state as well as counties in
2 the central part of the state and the western part of the
3 state.

4 Q. All right. Now, were there any areas where Democrats had
5 gains?

6 A. Well, I have it in four counties: Hamilton, Warren,
7 Delaware and Franklin.

8 Q. Okay. And do you have a summary in your report of the
9 various changes, what percentages of the -- of Ohio's counties
10 changed during this time frame?

11 A. Yes. That would be in Table 6.

12 Q. And that's on page eight?

13 A. Yes.

14 Q. All right. So what does Table 6 show?

15 A. Again, the lion's share of counties in Ohio across these
16 two time periods are becoming, in a nutshell, more Republican,
17 not less Republican.

18 Q. All right. And, again, to construct the map in Figure 1,
19 what races did you use to do that?

20 A. Again, I used all contested statewide races, the first time
21 period from 2004 to 2010, and then all contested statewide
22 races in the second time period from 2012 to 2018 now.

23 MR. McKNIGHT: Okay. Your Honors, with that, I have
24 no further questions of Dr. Hood at this time. And I would
25 like to move Exhibits D4 and D5 into evidence in accordance

1 with the parties' agreement that reports of experts who testify
2 at trial be admitted.

3 JUDGE BLACK: What were the exhibit numbers? I'm
4 sorry.

5 MR. McKNIGHT: It's Exhibits D4 and D5.

6 JUDGE BLACK: Any objection to their admission?

7 MS. LEE: No, Your Honor.

8 JUDGE BLACK: They're admitted.

9 (Defendants' Exhibits 4 and 5 were admitted.)

10 MR. McKNIGHT: And, Your Honor, I believe I've met my
11 time parameters and had some to spare. I'll note that for the
12 record.

13 JUDGE BLACK: Do you want some award or something?

14 (Laughter.)

15 MR. McKNIGHT: Whatever you can think of.

16 JUDGE BLACK: I appreciate it. It's a credit to you.
17 You're a fine lawyer.

18 What are all of those files?

19 JUDGE WATSON: Yeah. What are you going to do with
20 those?

21 MS. LEE: It remains to be seen whether they're
22 needed, Your Honors.

23 JUDGE BLACK: Very well. Cross when you're ready.

24 MS. LEE: Thank you.

25 CROSS-EXAMINATION

1 BY MS. LEE:

2 Q. Good afternoon, Dr. Hood.

3 A. Good afternoon.

4 Q. Do you recall we met at your deposition on December 17th of
5 last year?

6 A. Yes.

7 Q. Okay. Dr. Hood, is it fair to say that your standard
8 definition of partisan gerrymandering is drawing district
9 boundary lines to gain a political advantage?

10 A. Well, that's my standard definition I've been using with
11 undergraduate students for quite some time. That's sort of how
12 I introduce the issue to these undergraduates. And, again, we
13 spend about, in my Southern politics course, about three
14 weeks --

15 JUDGE BLACK: Okay. I'm going to encourage you to
16 answer yes or no, and then explain it. Okay? The question
17 was: Is this -- is your standard definition of partisan
18 gerrymandering drawing district boundary lines to gain a
19 political advantage.

20 THE WITNESS: Yes, Your Honor.

21 JUDGE BLACK: Very well.

22 Q. And that's the definition you've relied on for years;
23 correct?

24 A. Well, again, that's the definition I use in classes with
25 undergraduates to sort of get the discussion started, yes,

1 certainly. I think even the undergraduates, after a few weeks
2 of tutelage, quickly become aware that redistricting is a very
3 complicated process. And, you know, this is not -- that's not
4 a -- I'm not trying to produce a legal opinion, certainly.
5 That's more of a classroom opinion there, or use for in the
6 classroom. And, you know, redistricting is very complicated.
7 I don't know that, currently, there is any agreed-upon
8 definition for what -- what would be an illegal or
9 unconstitutional partisan gerrymander, per se.

10 Q. Certainly, I'm not asking you for your legal opinion on the
11 definition. Do you recall at your deposition you testified
12 that that's the definition you relied on for years without
13 qualifying it with respect to undergraduate students?

14 A. That's probably what I said, yes.

15 Q. Okay. And, Professor Hood, you also agree that just
16 because in some instances efforts to secure seats for the party
17 in control of the redistricting process failed to do so, this
18 does not mean that no gerrymanders are successful in securing
19 such an advantage for the party in control; correct?

20 A. So would it be fair to say that your question is just
21 because sometimes it doesn't work doesn't mean that it's not a
22 partisan gerrymander?

23 Q. For the general category, partisan gerrymanders -- perhaps
24 this will be an easier way to do it.

25 Have you heard of the phrase "dummymander"?

1 A. Yes.

2 Q. And what does that mean?

3 A. It's an attempted partisan gerrymander that doesn't turn
4 out as the people instigating the gerrymander want it to.

5 Q. Okay. And so the instance of such dummymanders does not
6 mean that no gerrymanders are successful in securing a partisan
7 advantage to the party in control of redistricting; correct?

8 A. Yes.

9 Q. The Republicans were in the majority in the Ohio House in
10 2011; correct?

11 A. Yes.

12 Q. And the Republicans were in the majority in the Ohio Senate
13 in 2011; correct?

14 A. Yes.

15 Q. And the governor in 2011, of Ohio, was a Republican;
16 correct?

17 A. Yes.

18 Q. And so the Republicans had complete control over the
19 legislative process for the enactment of the congressional map
20 in 2011; correct?

21 A. Well, they were -- they were in majority party control,
22 yes.

23 Q. And so would it be accurate, then, to say that the
24 Republican party had control over the legislative process in
25 2011, in Ohio?

1 A. Well, yes and no. I mean, the -- the bill passed, the
2 redistricting bill passed with some bipartisan support.

3 Q. So, again, I was not asking about the vote totals on the
4 bill, but whether because of the Ohio Republican party being in
5 control of the Ohio House in 2011, the Ohio Senate in 2011, and
6 the governorship in 2011, would it be accurate to say that the
7 Republican party had control over the legislative process in
8 2011, in Ohio?

9 A. Yes.

10 Q. Isn't it the case that beyond the mid-decade congressional
11 redistricting in Georgia that you've studied, you are unable to
12 cite a single case where a political party had complete control
13 of redistricting and elevated a self-imposed constraint above
14 the goal of defeating the opposition?

15 A. Well, that's certainly an example that comes to my mind, or
16 one that I can remember.

17 Q. Are you able to cite a single case other than the
18 mid-decade Georgia congressional redistricting?

19 A. Well, I know of other dummymanders that are recorded, to
20 use that term again. But you added the qualifier "where other
21 constraints were imposed above picking up seats," right? So
22 that's the one I can think of in that case.

23 Q. Sure. And so this is a little bit different than a
24 dummymander. This is an intentional choice, as you've
25 described it, where a political party had complete control of

1 redistricting and elevated a self-imposed constraint above the
2 goal of defeating the opposition. Is that a fair description
3 of the mid-decade congressional redistricting in Georgia?

4 A. Well, I think that's how I described it, yes.

5 Q. I think so. And are you able to cite any other cases other
6 than the mid-decade congressional redistricting in Georgia
7 where a political party, in complete control of redistricting,
8 elevated a self-imposed constraint above the goal of defeating
9 the opposition?

10 A. No.

11 Q. Okay. In your work in this case you reviewed the original
12 report of plaintiffs' expert Wendy Cho before you wrote your
13 report; correct?

14 A. Correct.

15 Q. And you reviewed the supplemental report of plaintiffs'
16 expert Wendy Cho before your deposition; correct?

17 A. I believe so. Yes.

18 Q. You reviewed the original report of plaintiffs' expert
19 Christopher Warshaw before you wrote your report; correct?

20 A. Correct.

21 Q. You reviewed the supplemental report of plaintiffs' expert
22 Christopher Warshaw before your deposition correct?

23 A. I believe that's correct, yes.

24 Q. You reviewed the original declaration of plaintiffs' expert
25 William Cooper before you wrote your report; correct?

1 A. Correct.

2 Q. And you reviewed the two supplemental declarations of
3 plaintiffs' expert William Cooper before your deposition;
4 correct?

5 A. At some point, yes.

6 Q. Okay. And at your deposition you clearly remembered
7 reviewing those reports, but not the errata report of William
8 Cooper; is that correct?

9 A. I believe so. If that's what I said at my deposition.
10 There were quite a few reports submitted by Mr. Cooper. I
11 was --

12 Q. Certainly. But you, as you've testified on direct, have
13 clearly reviewed it since?

14 A. At some point, yes.

15 Q. Okay. You also reviewed the report of plaintiffs' expert
16 David Niven; is that correct?

17 A. I've looked at it, yes.

18 Q. And you've reviewed the report of plaintiffs' expert Lisa
19 Handley; is that correct?

20 A. I've looked at the report, yes.

21 Q. And you did not do any analysis regarding the matters
22 discussed in Dr. Handley's report; is that correct?

23 A. That is correct.

24 Q. And the same is true for Dr. Niven's report; is that
25 correct?

1 A. That is correct.

2 Q. You also reviewed some data provided by plaintiffs'
3 experts; correct?

4 A. Yes.

5 Q. And it is also the case that you did not independently run
6 any of the analysis on that data as did the plaintiffs'
7 experts; is that correct?

8 A. I don't exactly understand the question.

9 Q. Well, did you run any of the analysis conducted by
10 plaintiffs' experts yourself?

11 A. Did I try to replicate their analyses? Is that fair?

12 Q. That's fair.

13 A. No.

14 Q. Okay. You did not compute any measures of partisan bias;
15 is that correct?

16 A. That's correct.

17 Q. Is it your opinion in this case that particular requests
18 from legislators necessarily led to the outcomes under the
19 congressional map?

20 A. I -- I don't think I have the knowledge to answer that
21 question.

22 Q. Okay. So then it's not an opinion you're offering?

23 A. Okay. State it one more time, please.

24 Q. Sure. Is it your opinion that particular requests from
25 legislators during the redistricting process necessarily led to

1 the partisan outcomes under the congressional map?

2 A. I didn't look at that directly, no.

3 Q. You did not run any simulations of possible congressional
4 maps for Ohio; is that correct?

5 A. That's correct.

6 Q. And you did not run any simulations of the likely
7 congressional maps for Ohio; is that correct?

8 A. I didn't run any simulations at all.

9 Q. Okay. And so that would include for any likely
10 congressional maps?

11 A. Correct.

12 Q. Well, is it fair to say that you don't know what
13 congressional maps are possible for the state of Ohio?

14 A. Well, there are quite a few possibilities. I mean, I don't
15 know that anyone knows what all the possibilities might be.

16 Q. So from the analysis you've done in this case, do you have
17 an idea of what possible congressional maps there are for the
18 state of Ohio?

19 A. Well, I've looked at the actual maps and hypothetical maps.
20 I mean, those are possibilities. But those wouldn't be all the
21 possibilities.

22 Q. Okay. And so beyond the maps you've reviewed in this case,
23 are you aware of the particulars of any other possibilities for
24 the congressional map?

25 A. No. Besides the fact that there are other possibilities,

1 obviously.

2 Q. Certainly. I don't think anyone would dispute that.

3 A. Okay.

4 Q. In conducting your work in this case you received data from
5 counsel for defendants; correct?

6 A. Correct.

7 Q. You received data from which you could calculate the core
8 retention metric for each of the incumbents; is that correct?

9 A. Correct.

10 Q. And you received data at the block level that you could use
11 to create your partisan index; correct?

12 A. Correct.

13 Q. Okay. And you received summary statistics that appeared to
14 be printouts from Maptitude from counsel for defendants
15 regarding the 2012 plan and the plaintiffs' proposed remedial
16 plan; correct?

17 A. Yes. I requested those reports.

18 Q. Okay. And you did not calculate the compactness measures
19 under the proposed remedial plan, the 2012 plan, or the 2002
20 plan; is that correct?

21 A. Correct. I requested that they be calculated, that those
22 reports be run.

23 Q. And you, in your report, reproduced the summaries received
24 from counsel; correct?

25 A. Correct.

1 Q. Okay. And, similarly, is it correct that you just reported
2 the summaries of which incumbents were paired under any of the
3 maps and did not independently analyze this?

4 A. Those were from the reports I requested, again, yes.

5 Q. So from those summary statistics, as you called them at
6 your deposition?

7 A. Well, the reports that were run from Maptitude that I
8 requested, yes.

9 Q. Okay. And you agree that counties and municipal
10 subdivisions are the most commonly used metrics for defining
11 communities of interest in redistricting; is that correct?

12 A. Yes. I mean, there can be many others, but those are --
13 those are two important communities of interest in Ohio,
14 certainly.

15 Q. Sure. And are those the more common of the various
16 definitions for communities of interest in redistricting?

17 A. I would say -- yeah, I would say counties, by far, are the
18 most common.

19 Q. And are municipalities, along with counties, the more
20 common?

21 A. It's also common to see that, yes.

22 Q. Okay. So you earlier testified on direct that the summary
23 split report you received incorrectly indicated the number of
24 split counties under the 2002 plan; is that correct?

25 A. Yes.

1 Q. Okay. And so if we could look, please, at page seven of
2 your report, which is D4, PDF page eight. Page seven of the
3 report, PDF page eight, please.

4 And in the paragraph "Summary", which is directly below
5 Table 6, based on your direct testimony, you would agree that
6 your -- the last sentence of your summary would need to remove
7 the phrase "or made slight improvements over" what you call the
8 benchmark plan; is that correct?

9 A. Yes. I think I need -- as I stated here in court today, I
10 amended that to say the plans are on par with one another --

11 Q. And so just --

12 A. -- is how I would phrase it now.

13 Q. Apologies for speaking over you.

14 A. That's okay.

15 Q. And so just to be clear, in your conclusion of assessing
16 the 2012 plan, the only improvements you had pointed to on
17 standard redistricting criteria were the county split that you
18 considered to be improvements?

19 A. That's what I was pointing to, yes.

20 Q. Okay. Great. Thank you.

21 After the 2010 census Ohio lost two congressional seats; is
22 that correct?

23 A. That's correct.

24 Q. And this meant that if all of the incumbents who were in
25 office under the 2010 -- under the 2002 plan, in 2010, if they

1 all intended to still run for office under the new map, at
2 least two of those incumbents could not remain incumbents;
3 correct?

4 A. I would agree with that, yes.

5 Q. And so if the legislature wanted to pair the fewest number
6 of incumbents in enacting the 2012 plan, that would have been
7 two sets of incumbents for four total congressional
8 representatives; correct?

9 A. Yes.

10 Q. Okay. Professor Hood, do you have any knowledge that the
11 legislature in 2012 was actually concerned with incumbency
12 protection in drawing the congressional map?

13 A. No. I'm making that inference.

14 Q. Okay. And so if we look at Defendants' Exhibit 4, which is
15 your report, at PDF page 24, if we look at the "Summary"
16 paragraph, so the third -- the fourth sentence here: "Ohio's
17 congressional map in 2012 certainly included an emphasis on
18 incumbency protection, in terms of both minimizing the pairing
19 of incumbents as well as maintaining cores from the incumbent's
20 previous district," do you see that sentence?

21 A. Yes.

22 Q. Would you agree that three pairs of incumbents is not the
23 minimum number of incumbents that needed to be paired under the
24 2012 plan?

25 A. It's not the minimum, no.

1 Q. Well, are you aware that the sponsor of the legislation
2 implementing the 2012 plan identified incumbency as subservient
3 to other interests?

4 A. I'm not aware of that, no.

5 Q. Okay. During your direct testimony, and presented in your
6 report, you discuss core retention; correct?

7 A. Correct.

8 Q. You agree that there is no agreed-upon standard for what
9 levels of core retention indicates that the goal of a
10 districting map is to protect incumbents?

11 A. That's correct.

12 Q. And you have never personally identified such a standard?

13 A. I have not, no.

14 Q. And in previous work you have asserted that a core
15 retention level of 68.7 percent greatly altered the
16 relationship between representatives and constituents; correct?

17 A. In that particular academic article, yes. It was a
18 different redistricting in a different state, but yes.

19 Q. Certainly, it's a different example. I'm not disputing you
20 there. But you described a core retention rate of 68.7 percent
21 as greatly altering the relationship between representatives
22 and constituents; is that correct?

23 A. I think that's accurate, according to what the article
24 said, yes.

25 Q. Okay. You agree that the characteristics of the voters

1 retained in the core of a district can have an impact on
2 whether the retained core is protective of an incumbent;
3 correct?

4 A. It's possible, yes.

5 Q. Okay. And you did no such analysis regarding the
6 characteristics of the retained voters in the core retention in
7 this case; correct?

8 A. No, I didn't do anything beyond what was presented in the
9 report.

10 Q. Okay. Now, Professor Hood, you agree that for all of the
11 paired 2011 incumbents under Ohio's congressional map, the
12 incumbent with the higher core retention rate is favored by the
13 map as compared to the other paired incumbents?

14 A. I mean, is that a -- is that a statement or --

15 Q. Is that correct? Do you agree?

16 A. I would agree that someone that retained more of their --
17 or more of their constituents from their previous district
18 probably had an advantage over the other incumbent, yes.

19 Q. And for the incumbent who retained more of their
20 constituents as compared to the other incumbent with whom they
21 were paired, that first incumbent is more favored by the map;
22 is that correct?

23 A. Yes. I mean, based on what we know about the relationship
24 between maintaining cores and incumbency protection and having
25 the same constituents move with you to a new district, yes.

1 Q. Okay. And so you agree that Representative Renacci was
2 favored under the congressional map over Representative Sutton
3 as he retained double the core of his voters, as compared to
4 Representative Sutton; is that correct?

5 A. Well, if the numbers you're representing to me are --

6 Q. Well, we can go ahead and take a look at them.

7 A. Okay.

8 MS. LEE: If I could please put up Defendants' 4, PDF
9 page 18, which will correspond to page 17 of the pin cited
10 report, Footnote 22.

11 Q. Do you see that?

12 A. Yes. Yes, I do. I do.

13 Q. And so is it correct that you then agree that
14 Representative Renacci was favored under the congressional map
15 over Representative Sutton in their pairing?

16 A. Yes, on that metric, yes.

17 Q. Okay. And on what metric was he not favored over her with
18 respect to their pairing in this district?

19 A. Well, I don't know. I'm just saying, on that metric, I
20 agree with that.

21 Q. Okay. You reviewed the November 27th supplemental
22 declaration of William Cooper; is that correct?

23 A. I believe so, yes.

24 Q. And you agree that under each of the hypotheticals in Mr.
25 Cooper's declaration, the 2011 incumbents are paired in the

1 same manner, meaning two Democrats are paired in one district,
2 two Republicans are paired in one district, and one pairing is
3 one Democrat and one Republican; is that correct?

4 A. From what I remember, yes. Now, they're not the exact same
5 pairings, but the -- the characteristics of the pairings are
6 the same, from what I remember.

7 Q. Yes. And that's the characteristics of the pairings as you
8 describe them in your -- in your report; correct?

9 A. That's correct.

10 Q. Okay. And do you further agree that the core retention
11 rates in Mr. Cooper's hypotheticals are highly similar to those
12 under the enacted plan?

13 A. I don't remember that just sitting here.

14 Q. Okay. And so would seeing the supplemental declaration of
15 Mr. Cooper that you looked at at your deposition help refresh
16 your recollection?

17 A. It certainly wouldn't hurt.

18 MS. LEE: Okay. May I approach, Your Honor?

19 JUDGE BLACK: Yes.

20 (Ms. Lee distributes document.)

21 THE WITNESS: Thank you.

22 Q. And so Mr. Cooper's second supplemental declaration is in
23 evidence at P93. I've provided you with the specific scanned
24 version of the same document that was used at your deposition
25 so you can see that it's Exhibit 7 to your deposition of

1 December 17th, 2018. I can direct you to page seven at Figure
2 4, and page 14 at Figure 9.

3 A. Okay.

4 Q. And so do you agree that the core retention rates in Mr.
5 Cooper's hypothetical are highly similar to those under the
6 enacted plan?

7 A. Yes, they're similar.

8 Q. Are they highly similar?

9 A. They are pretty close.

10 Q. Do you recall agreeing that the core retention figures
11 between Mr. Cooper's hypotheticals and the enacted plan were
12 highly similar at your deposition of December 17th, 2018?

13 A. Do I recall testifying to that fact?

14 Q. Yes.

15 A. Not specifically. I'm not saying I didn't.

16 Q. Okay.

17 A. I mean, we have the document right here, though, so --

18 Q. Sure. I'm just wondering about why you're defining it as a
19 different level of similarity than you testified to at your
20 deposition.

21 A. Pretty darn close. Is that -- they're not quite identical,
22 but --

23 Q. Sure. Are the core retention figures in Mr. Cooper's
24 hypotheticals highly similar to those of the enacted plan?

25 A. Yes, I would say so.

1 Q. Okay. And do you agree that Mr. Cooper's hypothetical maps
2 have higher compactness scores than the enacted plan?

3 A. Well, the remedial map does.

4 Q. Sure. And I'm talking about the hypothetical maps that are
5 in the second supplemental declaration, which you have before
6 you. And if you'd like some -- some roadmapping to refresh
7 your recollection, you could look at Figure 5 on page eight
8 with paragraphs 19 and 20, and Figure 10 on page 15 at
9 paragraphs 39 and 40.

10 A. So looking at Figure 5, I guess, yes, the compactness
11 scores in the Hypothetical 1A plan are higher than the
12 compactness scores in the enacted plan.

13 Q. Okay. And for Figure 10, are the compactness scores for
14 the Hypothetical 2A plan, you also agree that they are higher
15 compactness scores than the 2012 plan?

16 A. Yes.

17 Q. And you also agree that Mr. Cooper's hypothetical maps
18 split fewer counties and MCDs than the enacted plan, is that
19 correct?

20 A. Okay. Can you direct me to --

21 Q. Sure. Page nine, paragraphs 22 to 24; page 16, paragraphs
22 42 and 43.

23 A. Yeah. There are fewer county splits, yes.

24 Q. And, further, subcounty municipal civil division splits; is
25 that correct?

1 A. Yes.

2 Q. Do you agree that a remedy is presented to the Court for
3 future use? Correct?

4 A. That's correct.

5 Q. And you further agree that it makes sense to consider where
6 incumbents are presently located when offering a remedial plan
7 to be imposed today; correct?

8 A. You can do that. But to the extent to which Mr. Cooper was
9 making comparisons to the benchmark plan, I think we should
10 include all the comparisons, so --

11 Q. And do you agree that it makes sense to consider where
12 incumbents are presently located when offering a remedial plan
13 to be imposed today?

14 A. Well, if you get to that point, yes.

15 Q. Okay. You agree, Dr. Hood, that the Moran I coefficient
16 that you present in your report simply indicates that Democrats
17 live near Democrats and Republicans live near Republicans;
18 correct?

19 A. In plain English, yes.

20 Q. Okay.

21 A. I mean, that's what it's designed to do.

22 Q. Okay.

23 A. That's what that statistic is designed to do, is to detect
24 spatial clustering.

25 Q. And you agree that the Moran's I coefficient does not

1 indicate that Democrats are differentially clustered than
2 Republicans; correct?

3 A. It's not designed to do that, nor -- nor am I aware of a
4 particular spatial statistic that could tell us that, to be
5 honest with you.

6 Q. You did not look at the measure K-Nearest Neighbor;
7 correct?

8 A. No.

9 Q. Are you familiar with the political science literature that
10 indicates that spatial efficiency of partisans does not explain
11 the Republican seat share advantage in congressional
12 delegations including Ohio?

13 A. I'm not aware of that article.

14 JUDGE BLACK: Objection?

15 MR. McKNIGHT: Objection, Your Honor. Lack of
16 foundation.

17 JUDGE BLACK: Very well. Noted.

18 A. I've not read that article.

19 Q. Okay. And as you've testified to on direct, you're a
20 tenured professor in political science?

21 A. Yes.

22 Q. And you generally have experience reading political science
23 literature; correct?

24 A. Yes. I do do other things, though, so --

25 Q. Understood. Isn't it the case that you did not do any

1 independent analysis to confirm that the political geography of
2 where Democrats are situated in Ohio makes it so that they
3 should only win four of the 16 congressional districts?

4 A. I didn't perform that analysis, no.

5 Q. Okay. In your report, Defendants' 4, PDF page 11 through
6 12, which is pin cites three and four, pages ten and 11, you
7 stated that the "Presence of partisan clustering can lead to a
8 phenomenon known as natural packing"; is that correct?

9 A. Yes.

10 Q. Well, do you agree that the phrase "natural packing"
11 implies that where a cluster of Democrats want -- implies that
12 a cluster of Democrats wind up in the same congressional
13 district; correct?

14 A. Well, it doesn't have to be Democrats. A cluster of
15 partisans --

16 Q. Okay.

17 A. -- period.

18 Q. And so it implies that a cluster of partisans will wind up
19 in the same congressional district; correct?

20 A. It's possible, yes.

21 Q. And do you agree that the use of that term implies that to
22 be the case?

23 A. Yes, sir. This is -- natural packing is talking about the
24 geographic footprint of partisans, right.

25 Q. Yes. And with respect to redistricting, the idea that this

1 clustering will lead them to be in the same district; correct?

2 A. There's a higher probability, yes.

3 Q. Okay. And you testified on direct, and you mention also in
4 your report, that Democrats tend to live in urban areas in the
5 state of Ohio; is that correct?

6 A. There's not -- not every Democrat. There's evidence of a
7 relationship there.

8 Q. Understood. And so Cincinnati is one of the urban areas in
9 the state of Ohio; is that correct?

10 A. Correct.

11 Q. Okay. Let's look at Figure 4 of your report, which is D4,
12 PDF page 38. The VTD coloring in this figure, as I believe was
13 established on direct, is based on your partisan index; is that
14 correct?

15 A. That's correct.

16 Q. Okay. And if we look to the city of Cincinnati, which is
17 in the lower left-hand corner of the figure as it's in the
18 lower left-hand corner of the state, isn't it correct here that
19 the district lines split the Democratic VTDs in Hamilton County
20 between District 1 and District 2?

21 A. Well, there's -- there's a line drawn through Hamilton
22 County, yes. And there has to be, because Hamilton County is
23 larger than the ideal district size.

24 I can't exactly make out the city -- the city boundaries
25 are not plotted here, nor are the county boundaries

1 necessarily, but, yes, there's a line through Hamilton County.
2 There has to be.

3 Q. And do you agree, looking at this Figure 4 in your report,
4 that that district line runs through a clustering of blue or
5 Democratic VTDs in Hamilton County?

6 A. Yes.

7 Q. Okay. And that line didn't show up there accidentally;
8 correct?

9 A. Someone has to draw the line.

10 Q. Right. And the legislature drew this line that breaks up
11 the cluster of Democratic VTDs in Hamilton County; correct?

12 A. Not completely, but, yes, there's a line running through
13 there.

14 Q. Okay. And the legislature drew that line?

15 A. The legislature drew that line, yes.

16 Q. And so while these blue VTDs here in the Cincinnati region
17 are in spatial proximity to each other, they are split apart by
18 a district line; correct?

19 A. Well, they are split. Again, there's a heavy concentration
20 of dark blue VTDs to the west there that are retained. Again,
21 I don't know exactly where the city and/or county boundary is
22 on this map because it's not plotted. But, yes, there's a line
23 through Hamilton County.

24 Q. And on both sides of that line, though, I'll grant you,
25 more of the dark blue are to the left side of the line, but

1 both sides of the line there are dark blue VTDs split between
2 District 1 and District 2; correct?

3 A. There are some on both sides, yes.

4 Q. Cleveland is another urban area in the state; correct?

5 A. Correct.

6 Q. Let's look at Figure 5 of your report, which is just on the
7 next page. And you agree that you have a concentration of dark
8 blue VTDs surrounded by light blue VTDs, which are then bounded
9 on the south by pink Republican VTDs; is that correct?

10 A. Yes.

11 Q. And so the Democratic VTDs in District 11 are not only
12 clustered together in the Cleveland area, but further ones are
13 picked up on the other side of the Republican VTDs that are
14 visible here in your Figure 5; is that correct?

15 A. From my memory, yes. District 11 is running down south
16 there.

17 Q. Yes. Okay.

18 A. Yes.

19 Q. You testified on direct that you created a partisan index
20 in this case; correct?

21 A. That's correct.

22 Q. And on page 11 of your report, D4, PDF page 12, in the last
23 paragraph, in the first sentence you indicate that your index
24 is based on the statewide contested elections for the decade
25 preceding the 2010 redistricting cycle; is that correct?

1 A. Yes.

2 Q. And you further indicate that these would have been the
3 same data that the Ohio Legislature would have had at its
4 disposal when drawing a new congressional districting plan
5 prior to 2012; correct?

6 A. Correct.

7 Q. Okay. And, Professor Hood, you agree that there were five
8 statewide races in 2002 included in the decade preceding the
9 2010 redistricting cycle; is that correct?

10 A. Yes.

11 MS. LEE: And we can put up Plaintiffs' Demonstrative
12 88.

13 Q. And the 2002 data would have been available to you at the
14 time of your report; is that correct?

15 A. Certainly.

16 Q. Okay.

17 A. I mean, it was prior -- prior to writing the report,
18 obviously, so --

19 Q. Certainly. I'd like to just look at your data for a little
20 bit, just so we can identify what your data stands for in terms
21 of the elections that were available to you in creating your
22 partisan index.

23 MS. LEE: Could we put up P266.

24 MR. NAJARIAN: Give me just a moment.

25 Thank you.

1 Q. Okay. And, so, Professor, this is the data plaintiffs
2 received from defendants' counsel along with your expert
3 report.

4 MS. LEE: Plaintiffs move for admission of P266, which
5 has no objections, from what we received from defendants.

6 JUDGE BLACK: Any objection to P266?

7 MR. McKNIGHT: We don't have any objection to this as
8 demonstrative, no.

9 JUDGE BLACK: Are you moving this in as a
10 demonstrative?

11 MS. LEE: I'm moving this in as an exhibit. This is
12 not from plaintiffs' demonstrative exhibits. This is from
13 plaintiffs' exhibits which were exchanged earlier in the
14 pretrial proceedings.

15 JUDGE BLACK: Right. And so you're moving the
16 admission of P266, and you're representing there are no
17 objections on the objection list?

18 MS. LEE: Yes, Your Honor.

19 JUDGE BLACK: Is there any objection from the defense?

20 MR. McKNIGHT: No objection, subject to any that might
21 appear on the list.

22 JUDGE BLACK: I'm sorry. You sound like a lawyer.
23 What?

24 MR. McKNIGHT: I don't believe there are any on the
25 list. I just haven't had a chance to check it. But I don't --

1 if there are none on the list, we don't have any objection now.

2 JUDGE BLACK: It's admitted.

3 (Plaintiffs' Exhibit 266 was admitted.)

4 Q. Professor, if you look at the row one, column F, do you
5 know what G02G, underscore, DV stands for?

6 A. Well, from memory, it should be governor, zero two,
7 Democratic Vote, general election.

8 Q. Okay. Perfect. And the same G02G, underscore, RV is for
9 Republican vote for that same election; correct?

10 A. Yes.

11 Q. Okay. And looking at column I, G02A, underscore, DV, do
12 you recall what that is?

13 A. I believe that's the attorney general, Democratic vote,
14 2002, general election.

15 Q. Okay. And to not have to go through it for each one, for
16 any one where we're considering the race for the election year
17 for Democratic vote, all RV does is give us the Republican
18 vote; correct?

19 A. Right.

20 Q. Okay.

21 A. DV, Democratic vote; RV, Republican vote.

22 Q. Do you recall what G02I, underscore, DV stands for?

23 A. Well, from what I remember, auditor, state auditor.

24 Q. And what does G02T, underscore, DV stand for, if you
25 recall?

1 A. I -- I want to say Secretary of State, if I'm remembering
2 the coding correctly. I mean, I don't have that in front of me
3 right here.

4 Q. Sure. That sounds correct to me as well.

5 What does G02J, underscore, DV stand for?

6 A. Treasurer, I believe, state treasurer.

7 Q. Okay.

8 JUDGE WATSON: Is there a key to this somewhere?

9 MS. LEE: There's not. That's why I'm establishing it
10 here, Your Honors.

11 Q. And column U, G04P, underscore, DV, do you recall what that
12 stands for?

13 A. Presidential election, 2004, Democratic Vote.

14 Q. Okay. Great. And then column X, G04S, underscore, DV, do
15 you recall what that stands for?

16 A. General Election, U.S. Senate, 2004, Democratic Vote.

17 Q. Okay. And throughout your data, including for the other
18 years that were not the ones we discussed, does the two-digit
19 number after the G stand for the election year, '06, '08, '10?

20 A. Yes.

21 Q. Okay.

22 A. It should.

23 Q. Okay. And is it also the case that the abbreviation for
24 each office, G for governor, and so on that we've just
25 discussed, is the same for each election year in which those

1 races might appear?

2 A. The abbreviations should not change.

3 Q. Okay. Great. Thank you.

4 And the 2002 data was, in addition to being available to
5 you at the time of your report, was also available to the
6 legislature at the time of the 2010 redistricting; is that
7 correct?

8 A. Well, I would assume so. I can only -- only assume. I
9 mean, the election had been held.

10 Q. Okay. Do you agree that the inclusion of certain elections
11 can impact the level of partisanship that an index shows;
12 correct?

13 A. Certainly.

14 Q. And you agree that leaving out certain elections may impact
15 the level of partisanship an index shows; correct?

16 A. The choice of which elections to include or exclude, yes.

17 Q. Okay. So let's look at Defendants' 4, PDF page 12, which
18 is page 11, Footnote 16. This is how you computed your
19 partisan index; is that correct?

20 A. That is correct.

21 Q. Okay. And it's your opinion that this is a correct way to
22 compute a partisan vote index that one could rely upon;
23 correct?

24 A. Well, this is a standard formula I've used. The
25 computation is, yes.

1 MS. LEE: Okay. I'd like to put up Plaintiffs'
2 Demonstrative 90, which is another Excel or database file, so
3 there may be a bit of a delay. This presents election data
4 produced in discovery to plaintiffs, which is at Plaintiffs'
5 Exhibit 45 to 61, which were agreed upon, subject to the
6 Maptitude stipulation, between the parties. And on this first
7 tab that includes P45 to 61, could we scroll across to column
8 AP. AP as in Peter.

9 MR. NAJARIAN: Thank you.

10 Q. And this data from the time appears to have the same type
11 of headers on the data that you used in computing your index;
12 is that correct?

13 A. Yes.

14 MS. LEE: Okay. Could we go to the last tab at the
15 bottom, Computation. And can we key to cell V2. V2, please.
16 Just up one cell, please.

17 MR. NAJARIAN: Thank you.

18 Q. Okay. And you can see in cell V2 that the formula is the
19 two-party vote share for each of these races in each district
20 summed and divided by 15. So this is the computational formula
21 for the formula laid out in your Footnote 16. Does that make
22 sense?

23 A. Yes. I didn't make these computations.

24 Q. Oh, I understand that.

25 A. Okay.

1 Q. Just, plaintiffs' demonstrative exhibit, based on the data
2 we've received in this case.

3 A. Okay.

4 Q. And I'm just trying to provide some background for the
5 numbers we're going to look at in the demonstratives. Okay?

6 A. Okay.

7 Q. Okay. Great.

8 MS. LEE: And if we then -- please, could you key to
9 X2.

10 Q. And so this is a longer sum. It includes the first five
11 columns that were not included under the summation for the Hood
12 index, which is the 2002 races. And then it's just the same
13 formula with five additional races divided by 20 instead of
14 divided by 15.

15 Is that the correct way to compute a partisan index that
16 includes those additional five 2002 races?

17 A. Yes, as long as the computations made before them were
18 correct.

19 Q. Sure. We can look at those if you want to.

20 A. Well, I'm just making that statement.

21 Q. Okay.

22 A. I mean, that's just a summary computation at that point,
23 so --

24 Q. Yes. And the computations for that is included at the
25 second tab of this demonstrative Index Races, but I will try

1 and not belabor the Court with that, if we're all in agreement
2 on the addition of the two-party -- the Republican presented or
3 the two-party vote share for each of the races added together,
4 and then divided by the total number of races, correct?

5 A. Okay. Yes.

6 Q. Okay. And we've discussed that your index does not include
7 the full set of elections based on the statewide contested
8 elections for the decade preceding the 2011 redistricting cycle
9 as it does not include these five 2002 statewide races; is that
10 correct?

11 A. That is correct.

12 MS. LEE: Okay. I'd like to put up PD89.

13 Q. And this is just following on the formula that you used for
14 the 2004 to 2010 races. Do you agree that this is the correct
15 way to compute the partisan index, including the 2002 races in
16 that period as well?

17 A. It looks like it, yes.

18 MS. LEE: All right. I'd like to put up PD92.

19 Q. Professor Hood, this is the same table included in your
20 report at page 15, but updated to include the 2002 statewide
21 races that we've been discussing, which were available at the
22 time of redistricting.

23 You agree that with the index applied with the full set of
24 statewide-contested elections in the decade preceding the 2011
25 redistricting cycle applied, there are no districts that lean

1 Democratic; correct?

2 A. You mean that are competitive but Democratic leaning; is
3 that fair.

4 Q. Yes. Following along the same categorization that you use
5 in your report, that's what this table does here, your 45 to 55
6 percent being what you've classified as competitive, and
7 leaning in the direction of one party or another. And, here,
8 there are no competitive leans-Democratic districts when you
9 use the full set of races; correct?

10 A. It doesn't look like it.

11 Q. Okay. And you also agree that there are far fewer
12 districts in your 45 to 55 competitive range than when using an
13 index that leaves out the 2002 statewide races; correct?

14 A. You mean that includes the 2002?

15 Q. There are far fewer districts here with an index that
16 includes 2002 than when you use the index of 2004 to 2010; is
17 that correct?

18 A. Yes.

19 Q. Okay. Regarding competitive districts, you testified on
20 direct of the -- of using a -- I believe what you called
21 standard 45 to 55 percent range for competitiveness; is that
22 correct?

23 A. That's correct.

24 Q. Okay. I'd like to look at your report, D4. I believe it's
25 PDF page 39, your Figure 7.

1 So in your partisanship key in the bottom corner for all of
2 these maps -- District 7 may not be the mean -- I mean, Figure
3 7 may not be the specific one we're looking at. The coloring
4 that you use in these maps, there's no way to tell the VTDs
5 that fall in your so-called -- in the competitive range from
6 ones that fall either between 25 and 44.9 or 55.1 to 74.9;
7 correct?

8 A. That's correct.

9 Q. Okay. And that would also be the case if we looked at the
10 larger banded competitive range that you referenced in your
11 direct testimony of the plus or minus ten percent, so that
12 would be even more so-called competitive VTDs that couldn't be
13 identified as competitive in these figure distributions;
14 correct?

15 A. That's -- that's -- I mean, this really wasn't the purpose
16 of this map.

17 Q. Sure.

18 A. I just had to create some categories that one could see
19 with the eye, clearly.

20 Q. Okay. Understood. Just trying to understand the
21 relationship of competitiveness to the percentages that you've
22 included as the key for each of these figures you presented.

23 With respect to districts being competitive, you agree that
24 none of the congressional districts in Ohio has flipped back
25 and forth between the two major political parties under the

1 current congressional map; is that correct?

2 A. I believe that's correct, from memory, yes.

3 Q. And you agree that a national wave can have the impact of
4 making districts more competitive; is that correct?

5 A. It can. There are a lot of factors involved in elections,
6 and that's one of them.

7 Q. Okay. And at the time of your deposition you had not done
8 any analysis demonstrating that in 2018 there was no wave
9 election in Ohio versus there being a wave election constrained
10 by the partisan districting; is that correct?

11 A. Correct.

12 Q. Okay. And since then you have not done any analysis
13 demonstrating that there was no wave in Ohio in 2018 versus
14 that there was a wave election constrained by the partisan
15 redistricting; correct?

16 A. Well, the analysis I presented on 2018 is contained in my
17 supplemental report.

18 Q. Sure. And does it include any analysis demonstrating that
19 there was no wave in Ohio in 2018 versus a wave being
20 constrained by the partisan redistricting?

21 A. I would say so, yes.

22 Q. And in what way?

23 A. Well, the first table that's there, the summary statistics
24 of the statewide races, demonstrate that, if anything, there's
25 less of a wave in Ohio compared to some other states where

1 congressional seats were flipping.

2 Q. And your analysis does not consider the congressional
3 outcomes in Ohio; correct?

4 A. Well, I -- I list those.

5 Q. Okay. Does your analysis --

6 A. I'm making -- I'm making an inference, I guess is what I'm
7 saying.

8 Q. Okay. Does your analysis consider the percentage Democrat
9 and Republican vote for Congress in the congressional districts
10 in Ohio in 2018?

11 A. I don't have the vote totals, no. I do have the winners
12 listed.

13 Q. Okay. And you don't have the percentages of the vote total
14 either; is that correct?

15 A. For Congress?

16 Q. For Congress.

17 A. No, not in the report.

18 Q. Okay. You agree that your index understates the Republican
19 percentage as compared to the index of the full set of
20 elections based on the statewide contested elections for the
21 decade preceding the 2010 redistricting cycle, including 2002;
22 is that correct?

23 A. I wouldn't exactly put it in those terms.

24 Q. Does your index state a lower Republican percentage as
25 compared to the index that -- of the full set of elections

1 based on the statewide contested elections for the decade
2 preceding the 2010 redistricting cycle, including 2002?

3 A. Yes, that's true.

4 Q. Okay.

5 A. Things do change or can change over time.

6 Q. Sure.

7 MS. LEE: Let's put up Plaintiffs' Demonstrative
8 PD097.

9 Q. Okay. And this demonstrative shows that your index, which
10 is in the middle column, states a lower Republican percentage
11 as compared to the index that uses the full set of elections
12 based on the statewide contested elections for the decade
13 preceding the 2010 redistricting cycle, including 2002, by an
14 average of 2.6 percent; is that correct?

15 A. Well, if all of this is added up correctly and calculated
16 correctly, then, yes.

17 Q. Okay. And for each district, it's not just the average,
18 but for each district, your partisan index states a lower
19 Republican percentage as compared to the index of the full set
20 of elections based on the statewide contested elections for the
21 decade preceding the 2010 redistricting cycle, including 2002;
22 is that correct?

23 A. Yes.

24 Q. Okay. You agree that the 2010 congressional election
25 results would have been known to the legislature at the time of

1 redistricting; correct?

2 A. Correct.

3 Q. You agree that those results would have been available to
4 you at the time of your report; correct?

5 A. 2010?

6 Q. Yes.

7 A. Yes.

8 MS. LEE: Okay. Let's put up Plaintiffs'
9 Demonstrative 94.

10 Q. This demonstrative reflects your index, the index that
11 includes the full set of elections based on the statewide
12 contested elections for the decade preceding 2010 redistricting
13 cycle including the 2002 and also the actual 2010 congressional
14 results.

15 A. Okay.

16 Q. Do you --

17 A. Okay.

18 Q. Okay. Do you agree that the index with the 2002 races
19 included, that middle column, is closer to reflecting the
20 outcome calculated using congressional elections than is your
21 partisan index?

22 A. In most cases, yes.

23 Q. And, overall, you would agree that using the 2010
24 congressional results there's no competitive races, as you've
25 defined them, at all; is that correct?

1 A. It doesn't look like it.

2 Q. Okay. And would you agree that's more similar to an index
3 that only indicates two competitive races versus an index that
4 indicates six competitive races?

5 A. Okay. Could you repeat the question?

6 Q. Sure. And so the 2002 -- using the 2002 congressional
7 election results, you agree that there are no competitive
8 districts; correct?

9 A. Not -- not looking at the congressional election results,
10 no.

11 Q. Okay. And is 16 districts with no competitive districts
12 more similar to an index using statewide races that indicates
13 there are two competitive districts versus an index using
14 statewide races that indicates there are six competitive
15 districts?

16 A. Well, in this particular example, yes.

17 Q. Okay. So you agree that by leaving out the 2002 races it
18 makes the enacted plan appear to have more competitive
19 districts than the data available at the time would suggest;
20 correct?

21 A. Well, I wouldn't exactly phrase it that way. I made a
22 decision about which election cycles I was going to use, and I
23 moved forward with that. I didn't leave out 2002, per se.

24 Q. But two thousand and --

25 A. Using the 2004 to 2010 vote index, there are more

1 competitive seats, yes.

2 MS. LEE: All right. And if we could please put up
3 Plaintiffs' Demonstrative PD095.

4 Q. This demonstrative reflects your index, the index of the
5 full set of elections based on statewide contested elections
6 for the decade preceding the 2010 redistricting cycle,
7 including 2002, and the congressional results that would have
8 been available to you at the time of your report, 2010, 2012,
9 2014 and 2016 congressional election results.

10 Do you agree that the index that includes the full set of
11 elections, based on statewide contested elections for the
12 decade preceding the 2010 redistricting cycle, including 2002,
13 is closer to the outcome of the actual two-party vote share for
14 the congressional elections in these districts across these
15 election years?

16 A. Let me ask you a question, if I can --

17 Q. Sure.

18 A. -- since I didn't create this.

19 In the 2010 column, are these the 2010 elections
20 reconstituted into the current districts?

21 Q. Yes.

22 A. Okay. I was a little confused about that.

23 So in the other congressional election totals are the
24 actual totals since there are 16 districts for 2012, 2014 and
25 2016; is that fair?

1 Q. Yes, as you would not reconstitute them since they are
2 coming out of those same districts.

3 A. Well, I'm just asking for clarification. Yes.

4 Q. Understood.

5 A. Okay. So your question was, is the index using the 2002
6 races closer to the congressional election outcomes than my
7 index?

8 Q. Yes.

9 A. Is that fair?

10 Q. Yes, that's fair.

11 A. Typically.

12 Q. Okay.

13 A. I mean, in terms of the sheer number, typically.

14 Q. So you agree that applying the full set of statewide races
15 from the decade preceding the redistricting reflects -- more
16 closely reflects the outcomes under the actual congressional
17 map following the redistricting?

18 A. Well, the levels are closer than under my index.

19 Q. And the comparison of the number of competitive races
20 compared to the number -- excuse me -- competitive districts
21 compared to the number of safe districts is more similar; would
22 you agree?

23 A. Well, I mean, yes. But, you know, for instance, in
24 District 6, I've got that as competitive. The next column has
25 it as competitive. For instance, in 2012 it's competitive.

1 Q. Sure.

2 A. So that's at least on par.

3 Q. Okay. And would you agree that you have it as competitive,
4 leaning Democratic -- District 6 we're referring to -- the full
5 set of elections based on the statewide contested elections for
6 the decade preceding the 2010 redistricting cycle, including
7 2002, has it as competitive, leans Republican, according to
8 your classification system, and in 2012 Congress, that would
9 also classify as competitive, leans Republican, and is actually
10 the outcome of a Republican winning that district?

11 A. Yes, that's correct.

12 Q. Okay. Do you recall at your deposition we discussed the
13 so-called unified index?

14 A. I remember you bringing that up, yes.

15 Q. Okay. Do you recall that the unified index was made up of
16 five elections: the 2004 president; the 2006 attorney general;
17 the 2006 auditor; the 2008 presidential, and the 2010
18 governor's race?

19 A. I wouldn't have recalled that from memory, no.

20 Q. Okay. Would it refresh your recollection to see
21 Plaintiffs' Exhibit which was used as Exhibit 14 at your
22 deposition?

23 A. Sure.

24 Q. Okay.

25 A. Thank you.

1 MS. LEE: Sure.

2 Could we please put up Plaintiffs' 261, and please go to
3 page six of the PDF.

4 Q. And in the fourth bullet down from the top it indicates "In
5 the five races we used," and then indicates two yielded losses
6 for Republicans, two yielded wins, and one yielded a plurality
7 which would also be a win.

8 And you see here we see those five races in parentheses
9 that I just asked you about? Do you see that?

10 A. Yes.

11 Q. And does that refresh your recollection of the composition
12 of the unified index?

13 A. Yes.

14 MS. LEE: Okay. Let's put up Plaintiffs'
15 Demonstrative 96, please.

16 Q. This demonstrative reflects this so-called unified index
17 that we just discussed, your index in middle column, and the
18 index that includes the full set of elections based on
19 statewide contested elections for the decade preceding the 2010
20 redistricting cycle, including 2002.

21 Do you agree that, like your index, the unified index
22 causes the districts to appear more competitive across the
23 districts than does the index that includes the full set of
24 elections based on statewide contested elections for the decade
25 preceding the 2010 redistricting cycle, including 2002?

1 A. Well, the way I would phrase it is there are more
2 competitive districts under the unified index.

3 MS. LEE: Okay. Let's put up Plaintiffs'
4 Demonstrative 99, please.

5 Q. In this demonstrative, similar to the one we looked at
6 comparing your index and the index based on the statewide
7 contested elections for the decade preceding the 2010
8 redistricting cycle, including 2002, shows that on average the
9 Republican percentage is understated by 3.2 percent. Do you
10 agree with that?

11 A. Well, again, if all the computations have been done
12 correctly, the average is about 3.2 percent less for the
13 unified index, yes.

14 Q. Okay. And across each of the districts the unified index
15 indicates a lower Republican percentage than for each of the
16 districts based on the index including the 2002 through 2010
17 statewide races; correct?

18 A. Yes.

19 Q. Okay. So do you agree, then, that both the unified index
20 and your index state a lower Republican composition for each of
21 the districts under the 2012 plan than could have been known at
22 the time of redistricting?

23 A. Well, it's lower than the index you created, that's
24 correct.

25 Q. And --

1 A. I mean, again, there's decisions that are made about what
2 to include in an index and what not to include.

3 Q. And it's correct in your report that you described your
4 index as -- let's find it. Page 11, I believe it is.

5 You described your index as based on the statewide
6 contested elections for the decade preceding the 2010
7 redistricting cycle; correct?

8 A. That's correct.

9 Q. And you agree with me that the 2002 statewide elections are
10 statewide contested elections for the decade preceding the 2010
11 redistricting cycle; correct?

12 A. Correct.

13 Q. Okay. If we look, please, at Figure 8 in your report,
14 which is the last of the maps before your CV, PDF page 41, it
15 is correct that in this map you are comparing the period 2004
16 to 2010 with the period 2012 to 2016; is that correct?

17 A. In Figure 8, yes.

18 Q. Yes, okay. And you've agreed that the 2002 races were
19 available to you when you were doing your work in this case,
20 and we've looked at your data at P266; correct?

21 A. Yes.

22 Q. Okay. And you agree that the 2002 results were certainly
23 part of the partisanship in Ohio at the county level in the
24 decade preceding the redistricting; correct?

25 A. Yes.

1 MS. LEE: I'd like to put up Plaintiffs' Demonstrative
2 PD104.

3 Q. So in this demonstrative the yellow highlighting shows the
4 counties which would have fallen in a lower Republican
5 percentage category if the 2002 races had been used.

6 Do you agree that this demonstrative shows that in 40
7 counties, not including the full set of the statewide contested
8 elections from the decade preceding the 2010 redistricting
9 cycle, the shift from pre-redistricting to post-redistricting
10 is overstated in 40 counties? Do you agree with that?

11 A. Well, according to this -- this figure. I guess my
12 question is: by how much? I mean, in other words, are these
13 counties still trending Republican or not, just by not as much?

14 Are you -- are you basing this off of the categories I
15 created?

16 Q. Yes. I'm just following along with the categories you
17 created as that's the way you presented the information to the
18 Court and to plaintiffs.

19 A. So I think it's possible that they may have trended less
20 Republican. But still most of these counties are probably
21 trending Republican across these two time periods.

22 I'm going to take your word that there are 40 yellow
23 counties, I guess, so --

24 Q. Sure. You agree that by failing to include 2002 in your
25 pre-redistricting index, this understated the Republican

1 composition of Ohio in the decade preceding the 2010
2 redistricting cycle; correct?

3 A. Well, again, I made a decision of which election cycles and
4 which races to include, and that's what I moved forward with.

5 To answer your question, if you include 2002, the
6 percentage for the Republican vote index is higher than under
7 my vote index.

8 Q. Right. And in your report, your reference to Figure 8 was
9 about a shift over time pre- and post-redistricting; correct?

10 A. Yes.

11 Q. Okay. Let's look again at your report, Table 12 on page 12
12 of D4, which is page 13 of the PDF. And you used these results
13 to generate your Figure 1, correct, these races?

14 A. Yes.

15 Q. Okay. And continuing on in your report, let's please turn
16 to page 27. And in the first full paragraph you indicate that
17 you -- "To begin this inquiry, I created another map analogous
18 to that presented in Figure 1 using a vote index to shade VTDs
19 in Ohio based on their partisan composition;" correct?

20 A. Correct.

21 Q. And in Footnote 39 on this page, I believe you testified on
22 direct, you indicated which races you used to generate Figure
23 7; correct?

24 A. That's correct.

25 MS. LEE: Okay. For ease of reference, let's please

1 put up PD100.

2 Q. And these are those two pages from your report put side to
3 side. Does this depict the comparison of the races you used
4 for your, quote, analogous Figures 1 and 7?

5 A. Yes, that's accurate.

6 Q. Okay. And you agree that the races indicated in Footnote
7 39 are not all of the 2012 to 2016 statewide races; correct?

8 A. No, that's correct. I made use of the data I had available
9 during that time period at the VTD level.

10 MS. LEE: Okay. So let's put up Plaintiffs'
11 Demonstrative 102.

12 Q. And so this is based on the official statewide election
13 results which have been entered into evidence as Joint Exhibit
14 18. This demonstrative indicates the Republican two-party vote
15 share for each of the 2014 statewide races.

16 You agree that the three races you did not include in your
17 index for Figure 7 for 2014 are attorney general, auditor and
18 treasurer?

19 A. Yes, just in Figure 7.

20 Q. Yes. Understood.

21 A. When I switched back to -- that's one of the reasons I
22 switched back to using counties, because I had complete data I
23 could rely on at that point.

24 Q. Sure. And you presented Figure 7 in your report as
25 analogous to Figure; 1 correct?

1 A. Well, it's analogous from the standpoint I'm drawing a
2 picture of the partisanship of Ohio at the VTD level. That's
3 what I'm saying.

4 Q. You agree that the races that you included in your Figure 7
5 were the two most Republican of the five statewide races in
6 2014; is that correct?

7 A. Well, according to this demonstrative, yes.

8 Q. And you agree that leaving out those races from 2014 would
9 make the state look more Republican than it otherwise would
10 with them included?

11 A. Well, I didn't have -- again, I didn't have those other
12 races at the VTD level to look at, so I never plotted it.

13 Q. I understand that. But adding races that have, additional
14 races that have a lower Republican percentage would overall
15 make the index a lower Republican percentage than it currently
16 is; correct?

17 A. Probably so.

18 Q. Okay. Professor Hood, we discussed you reviewed Dr.
19 Warshaw's reports in this case; correct?

20 A. Yes.

21 Q. And you were aware that Dr. Warshaw used a number of
22 different metrics in his report in addition to the efficiency
23 gap; correct?

24 A. That's correct.

25 Q. And you did not offer any analysis of the other metrics

1 considered in Dr. Warshaw's report other than the EG; correct?

2 A. That is correct.

3 Q. And in your report, D4, page 26 at Footnote 38 --

4 MS. LEE: Page 26, Footnote 38.

5 Q. -- you flagged the question of unequal turnout impacting
6 the efficiency gap; correct?

7 A. I'm citing that article, yes.

8 Q. Yeah. Are you aware that Dr. Warshaw controlled for uneven
9 turnout in his report?

10 A. I was uncertain about that.

11 Q. Okay. And you did not do any analysis regarding the
12 question of uneven turnout in the efficiency gap; correct?

13 A. No, not specifically.

14 Q. Okay. In your report you present the amounts of money
15 raised --

16 MS. LEE: I'm sorry. I'm just trying to see how much
17 longer, Your Honors. Not much longer, but not in the next two
18 minutes either.

19 JUDGE BLACK: What does "not much longer" mean? The
20 other gentleman predicted accurately.

21 MS. LEE: Yes.

22 (Laughter.)

23 JUDGE BLACK: He's a good lawyer.

24 JUDGE WATSON: Aww, that's not fair.

25 JUDGE BLACK: No offense to her. I'm just continuing

1 to pimp him.

2 JUDGE WATSON: That wasn't fair.

3 JUDGE BLACK: You're a good lawyer too. How long do
4 you estimate?

5 MS. LEE: 20 to 25 minutes at the outside.

6 JUDGE BLACK: And redirect?

7 MR. McKNIGHT: Right now just a couple of questions,
8 Your Honor.

9 JUDGE BLACK: All right.

10 (Judges confer privately.)

11 MS. LEE: I can try and speed it up if that helps.

12 JUDGE BLACK: No. You're doing fine. We've been
13 sitting up here a long time, and the Court would appreciate the
14 opportunity to break for the day.

15 MS. LEE: Okay. Understood.

16 JUDGE BLACK: So we'll break.

17 It's five of 5:00. I'd like to have this conversation with
18 you all about your predictions as to who is calling who, when.

19 What's the defense -- how many more you got, and when do
20 you think you're going to be through it now that we're going to
21 have to carry this one over?

22 MR. STRACH: Yes, Your Honor.

23 So we have three witnesses left on the list. We're
24 evaluating the extent to which we need to call maybe all of
25 them. You know, we may eliminate some.

1 We're going to get our list for tomorrow to the plaintiffs
2 by 7:00 PM tonight, per our agreement. So I think once we've
3 had a little bit of time out of court to confer, evaluate,
4 we'll have a very good idea of --

5 If we call all three, this would go into Thursday. If we
6 eliminate all three, we'd be done tomorrow. If we call some
7 but not all, it would be somewhere in the middle.

8 JUDGE WATSON: Would you share that with our clerks,
9 where you are by 7:00 o'clock tonight?

10 MR. STRACH: Yes, sir, absolutely.

11 JUDGE WATSON: That would be lovely.

12 JUDGE BLACK: And if the defense rests tomorrow, will
13 the plaintiff be prepared to call its rebuttal witnesses?

14 MS. LEVENSON: Yes, Your Honor, at least one.

15 We have one rebuttal witness that is set to go for
16 tomorrow. We're trying to work out with the congresswoman --
17 we didn't know that we would begin rebuttal tomorrow. We're
18 trying to see -- if you've noticed me texting, I've noticed
19 that things have been going fast and trying to determine
20 whether she can be available tomorrow.

21 She certainly is available Thursday morning, but it doesn't
22 seem that we're necessarily going into Thursday morning.

23 JUDGE BLACK: If you're able to get your witnesses on
24 tomorrow if they rest, the Court would be very grateful. We've
25 pushed the defense and the intervenors hard not to make us take

1 a day off. So perhaps additional texting. We'll look for the
2 7:00 o'clock notification and see where we are.

3 Mr. Lewis, did you need to be heard?

4 MR. LEWIS: Yes, Your Honor.

5 I guess the one question we would have returns to the
6 subject of Representative Kaptur. It's been offered that she's
7 going to be a rebuttal witness, and I think we would just like
8 a proffer from plaintiffs as to precisely what she will be
9 rebutting.

10 JUDGE BLACK: I don't object to that.

11 Do you? Why is she a rebuttal witness? What is she going
12 to rebut?

13 MS. LEVENSON: Your Honor, yesterday we heard from
14 Troy Judy, who testified that the Democrats requested that
15 Kucinich and Kaptur be paired and that that request resulted in
16 the district being configured in the way that it is. Mr. Judy
17 testified that the Republicans couldn't have dreamed up a
18 district that looked like that on their own and that they did
19 it based on information that was relayed to them by the
20 Democrat leaders of the state. That's what we'll be
21 addressing.

22 JUDGE BLACK: Is that responsive to your inquiry, Mr.
23 Lewis?

24 MR. LEWIS: It is, Your Honor. And I think it
25 demonstrates why Representative Kaptur is not an appropriate

1 witness. I don't know how --

2 First of all, the testimony from Mr. Judy on Monday, I have
3 his transcript up here on my screen, was referring
4 predominantly to discussions with a Mr. Ruvolo, not with Ms.
5 Kaptur. And I'm not really sure how Ms. Kaptur is going to be
6 able to rebut the clear impression created amongst this case
7 and that predated even the first day of trial, as material
8 comes up in depositions and other places, that Democrats had
9 input on the map, you know, regardless of what that may or may
10 not be.

11 JUDGE BLACK: The Court determines that she's an
12 appropriate rebuttal witness, and we want her available when
13 the time comes. And I recognize that that's a challenge.

14 MS. LEVENSON: Thank you, Your Honor.

15 (Judges confer privately.)

16 JUDGE BLACK: Both judges are telling me, yeah, she's
17 a rebuttal witness based on what Batchelder described her role
18 as.

19 In any case, the Court has ruled. We anticipate her
20 testimony by video conference, and we are not eager to lose an
21 afternoon or lose a day. And just as we leaned on the
22 defendants and the intervenors not to cause that hole to show
23 up, one more time: more texting.

24 MS. LEVENSON: Yes, Your Honor.

25 JUDGE BLACK: Is there more we need to discuss before

1 we adjourn for the day?

2 From the defense?

3 MR. STRACH: Not from us, Your Honor.

4 JUDGE BLACK: From the intervenors?

5 MR. LEWIS: Nothing, Your Honor.

6 JUDGE BLACK: From the plaintiffs?

7 MR. FRAM: Nothing, Your Honor.

8 JUDGE WATSON: I think we need to see pictures of the
9 new babies, too.

10 MS. LEVENSON: Yes, Your Honor.

11 JUDGE BLACK: Demonstrative.

12 (Laughter.)

13 JUDGE BLACK: Sir?

14 THE WITNESS: Yes, sir.

15 JUDGE BLACK: During the break between now and
16 tomorrow, please do not discuss your testimony with anyone.
17 Understood?

18 THE WITNESS: Yes, sir.

19 JUDGE BLACK: And you're kind of pleased you get to
20 spend the night here, aren't you?

21 THE WITNESS: Certainly.

22 JUDGE BLACK: Very well.

23 (Laughter.)

24 JUDGE BLACK: We are prepared to recess for the day.
25 You may step down, sir. Thank you.

(Witness temporarily excused.)

COURTROOM DEPUTY: All rise. This court is in recess.

(At 5:00 PM, the trial was recessed, to be continues on
Wednesday, March 13, 2019, at 9:00 AM.)

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C E R T I F I C A T E

I, Luke T. Lavin, RDR, CRR, the undersigned, certify
that the foregoing is a correct transcript from the record of
proceedings in the above-entitled matter.

s/Luke T. Lavin
Luke T. Lavin
Official Court Reporter

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